

THE INFLUENCE OF CONTROLLABILITY ON COLLEGE WOMEN'S EFFICACY AND
ATTRIBUTIONS IN PHYSICAL ACTIVITY

A Dissertation

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ABSTRACT

There is evidence that individuals' attributional patterns are important determinants of behavior. Controllability had been identified as an influential dimension of causal attributions. When individuals believe their actions have an effect, or control, on the outcome of an event, they are more likely to engage in a behavior. Contingency of feedback can be used to manipulate perceptions of controllability. The purpose of this study was to investigate the effect of controllability on causal attributions, efficacy, and performance in an exercise setting, using a design that accounts for explanatory styles. It was hypothesized that non-contingent outcomes on an initial task would negatively affect causal attributions, thus decreasing efficacy and performance on subsequent tasks. Participants were 150 female undergraduate students at a small four-year institution. Explanatory style was assessed prior to engaging in the experimental tasks. Self-efficacy, causal attributions, and performance on a hand grip and a wall squat task were assessed during a testing session. Taken together, the results of this study provide insight into how perceptions of controllability can influence the cognition and motivation of college-aged women as they approach physical tasks. There was some evidence that non-contingent feedback can produce a maladaptive pattern of attributions, in that women in the non-contingent positive feedback condition had more external attributions for success than those who received contingent or negative feedback. Non-contingent negative feedback was associated with both decreased self-efficacy and less effort, as reflected by poorer performance, on a subsequent task. Although strength and level of self-efficacy on a subsequent task were positively affected by positive feedback, a decrement in performance, which on this task infers a lack of effort, was evident. This demonstrates the importance of providing feedback that is contingent on performance, rather than simply providing positive feedback. Although explanatory style was not

directly related to self-efficacy, there was evidence that optimistic individuals were more efficacious than pessimistic individuals. Explanatory style did not interact with controllability conditions. One clear implication for practitioners that is supported by these findings is the importance of providing feedback that is contingent on performance.

CHAPTER 1: INTRODUCTION

A healthy active lifestyle across the life span reduces risks associated with obesity, cardiovascular disease, diabetes, and certain types of cancers. Despite improved mental health and a higher quality of life associated with an active lifestyle, the majority of the U.S. population remains insufficiently active (United States Department of Health and Human Services, [USDHHS], 1996). Inactivity at an early age contributes to risk factors and increases the prevalence of death from disease and obesity. College students have often been overlooked when physical activity and health are considered. Unfortunately, there is a decline in exercise participation between high school and college (Bray & Born, 2004) and often colleges do not require physical activity courses in their core curriculums. Females also tend to be less active than their male counterparts (Buckworth & Nigg, 2004) during both college and adult years. This decline in exercise may lead to a pattern of inactivity. Despite daily physical activity recommendations, this pattern is likely to continue throughout the adult life (Dishman & Dunn, 1988; Morrow, Krzewinski-Malone, Jackson, Bungum, & Fitzgerald, 2004).

Understanding the choices that individuals make regarding their physical activity behavior involves investigating a very complex set of variables. Motivation and the causal attributions that influence decisions are critical when explaining volitional behavior, such as choosing to exercise. This influence on females' choices regarding activity or the lack of it, is an important area of study in the effort to overcome negative behaviors and promote life-long fitness (Huang, Haris, Lee, Nazir, Born, & Kaur, 2003).

Attribution Theory

Individuals' attributions, a key component of motivation, explain beliefs, rather than

actual causes, regarding successes or failures and impact decisions to either withdraw from or continue an activity (Bandura, 1977; Nicholls, 1984; Walling & Martinek, 1995; Weiner, 1979; Witowski & Stiensmeier-Pelster, 1998). An aspect of attribution theory that is especially relevant in understanding females' activity choices is a pattern of learned helplessness (LeUnes, Nation, & Turley, 1980). When individuals believe that failure is attributed to lack of ability (i.e., no matter how hard they try, they cannot be successful at a task because they lack the ability), they are unlikely to exert effort. Many factors contribute to the development of learned helplessness and not everyone who experiences failure develops a pattern of learned helplessness. Although there are many possible explanations for performance outcomes, the four dominant categories that have been outlined by Weiner (1979, 1985) are effort, ability, task difficulty, and luck.

Early attribution research focused on the locus of control (Rotter, 1966) characterized on a continuum between internal and external. Ability and effort are characterized as internal, while task difficulty and luck are external attributions. Success attributed to either high ability (e.g. I have natural ability at this activity) or high effort (e.g. I tried hard and my effort paid off) represents a positive attribution pattern in which an individual is likely to continue in an activity. The perception of decreased control increases the probability of maladaptive behaviors including lack of resiliency (Martin, 2002) and performance deficits (Firmin, Hwang, Copella, & Clark, 2004).

A second dimension varies on a continuum of stability (Weiner, Frieze, Kukla, Reed, Rest, & Rosenbaum, 1971). Ability and task difficulty are characterized as stable while effort and luck are characterized as unstable. The stability of an event produces expectations for future

successes or failures as the more stable an event is perceived, the less change is expected in an individual's performance. However, if the causes influencing performance are subject to change, performance on future attempts is less predictable and intermittent in nature (Abramson, Seligman, & Teasdale, 1978).

A third dimension, the locus of causality (Weiner, 1979), was introduced based on the locus of control research. Causes are characterized as controllable or uncontrollable (locus of control) and internal or external (locus of causality). Effort is an internal, unstable, and controllable attribution. Ability is also internal, but is stable and uncontrollable. Task difficulty is stable, external, and uncontrollable, while luck is external, unstable, and uncontrollable. It is important to consider the relationship between intention and control. Individuals seek to accomplish tasks deemed controllable, but can only control what they intend to accomplish (Weiner, 1985).

When considering these three dimensions, the possible consequences of attributional patterns become clearer. Adaptive motivational patterns result from attributing failure to lack of effort (internal, unstable, and controllable) and luck (external, unstable, and uncontrollable). These two consequences can change on subsequent attempts (effort can increase and luck can ultimately change) and therefore future attempts may be successful. Maladaptive patterns result from attributing failure to lack of ability (internal, stable, and uncontrollable) and task difficulty (external, stable, and uncontrollable). If an individual lacks ability to be successful, and ability cannot be changed, then success on future attempts is unlikely.

Globality has also been introduced as a construct that should be considered in attribution theory (Abramson et al., 1978; Weiner, 1979; 1985). Attributions can be specific to a domain,

meaning individuals may perceive failure in isolated events (e.g. tennis), or generalized across events (e.g. all physical education activities) affecting performance in a variety of settings. An individual's response to outcomes also affects the perception of transfer across situations (e.g. I am not smart enough vs. the tasks are too difficult to perform, here). Regardless of consequences, it is difficult to distinguish who will initially generalize attributions and under which circumstances those attributions will arise.

Attribution theory (Weiner, 1979, 1985) provides explanations of how causal attributions influence one's performances, expectancies, and emotions (affect). These attributions are based upon the successes or failures of previous achievement tasks (Chandler, Lee, & Pangilly, 1997; Hagan & Medway, 1989; McAuley, Duncan, & Russell, 1992). Based upon one's cognitions and performance outcomes, changes in affect occur, either positively or negatively, to either avoid failure, continue success (Chandler, Lee, & Pangilly, 1997; Forsythe & McMillan, 1981; Hagan & Medway, 1989; McAuley, 1991; Weiner, 1985), or protect self-esteem (Rudisill, 1989; Weiner, 1985). Understanding attribution patterns provides the basis for understanding maladaptive behaviors that are associated with negative attributional patterns, thus contributing to learned helplessness.

Learned Helplessness

Learned helplessness (Seligman, 1975) is described as an acquired condition that occurs when an individual believes that his or her actions have no effect on the desired outcome (Dweck, 1986). More simply stated, individuals who are learned helpless believe that, no matter how hard they try, they will not be able to achieve a successful outcome. The concept of contingency has emerged as a focal issue with regard to learned helplessness, in that learned

helplessness reflects the belief that outcomes are not contingent on controllable factors. When outcomes are viewed as non-contingent (e.g. an individual's actions have no affect on the outcome), the likelihood that learned helplessness will develop increases. Motivational deficits (Martinek, 1996) and performance deficits (Diener & Dweck, 1978; Dweck & Reppucci, 1973; Dweck, 1975; Hiroto & Seligman, 1975; Seligman, 1975; Singhal & Kanungo, 1996) manifest as a result of cognitive mediators (e.g. perceptions and expectations of uncontrollability) and one's causal attributions (Abramson et al., 1978; Gernigon & Fleurance, 1998).

Causal attributions over time contribute to one's explanatory style, defined as the habitual manner in which one explains outcomes of events (Seligman, 1990). Explanatory style can be characterized on a continuum from optimism, an overall positive outlook about life in general, to pessimism, an overall negative outlook about life in general, to demonstrate the habitual thought processes of individuals. The relationship between learned helplessness and explanatory style focuses on pessimistic views of events in which individuals do not believe that outcomes are contingent on their actions. A pessimistic viewpoint fosters helplessness as one determines the degree of helplessness through repeated negativity. Pessimism, the belief that negative events will last a long time, undermines participation in activities (Seligman, 1990) and ultimately affects motivation. Individuals with an optimistic explanatory style, however, are not overcome with negativity and personal doubt. Instead these individuals view problematic events as minor setbacks in life.

The dimensions of locus of control, locus of causality, stability, and globality are all important considerations (Abramson et al., 1978; McKean, 1994; Seligman, 1990) as these mediators influence methods used to avoid demonstrating low ability on tasks (Mikulincer,

1994). Consequences are associated with causal attributions relating to the initial uncontrollable event (Campbell & Martinko, 1998; Lefcourt, Von Baeyer, Ware, & Cox, 1979; Peterson, Maier, & Seligman, 1993; Singhal & Kanungo, 1996). Learned helplessness, an inability to escape negative situations (Hiroto & Seligman, 1975), is characterized by four categories of consequences: task avoidance, lack of persistence or withdrawal, impaired performance, and lowered perceptions of ability.

Task avoidance, based on one's anticipation of an unsuccessful performance, results in a lower level of achievement. The tendency to avoid challenging tasks may lead to skill deficits while the choice of an easier task masks one's inability to perform comparatively with either the self or others (Bandura, 1977). Attributions (e.g. I did not want to do that task because I do not like that activity) thus allow an individual the ability to manipulate excuses explaining failure in order to maintain pride and protect self-esteem (Nicholls, 1984; Seligman, 1992).

A lack of persistence or withdrawal of effort on tasks can be seen (Abramson et al., 1978; Bandura, 1977; Dweck & Reppucci, 1973) especially when an individual experiences difficulty (Drucker, Drucker, Litto, & Stevens, 1998; Dweck, 1986). The individual withdraws effort on subsequent attempts and can therefore attribute failure to the decreased effort (internal and controllable) exhibited during the event. This lack of effort generates negative responses (e.g. I did not try very hard because I was tired, or why continue if I will only fail?) as one assumes personal responsibility for the poor performance and does not suffer from lowered self-esteem (Perry, Hechter, Menec, & Weinberg, 1993). The individual is less likely to generalize failure across tasks if effort can be increased on another task. Through the lack of persistence, the individual exerts control which influences outcomes and precedes motivational deficits on future tasks (Gernigon, Fleurance, & Reine, 2000) .

Uncontrollability also disrupts task performance (Villanova & Peterson, 1991). Motivation contributes to interest and enjoyment and thus drives one's desire to learn, work hard, and achieve his/her highest potential (Martin, 2002). Prolonged failures, attributed to lack of ability, however, may result in the acceptance of failure as an unavoidable consequence. The withdrawal of effort associated with decreased interest and enjoyment produces a deterioration in task performance and counter productive behaviors are utilized which compromise motivation on future tasks (Martin, 2002). Repeated failure is associated with avoidance, lack of persistence or withdrawal of effort, impaired performance, and perceptions of low ability (Cohen, Rothbart, & Phillips, 1976; Diener & Dweck, 1978; Hiroto & Seligman, 1975; & Mikulincer, 1986). These deficits enable an individual to justify and accept failure. One may eventually adopt a false perception of incompetence based upon those non-contingent outcomes.

Impaired performance, task avoidance, and lack of persistence or withdrawal are factors that are intertwined with an individual's perception of his/her ability. Those factors are linked to non-contingent outcomes. When an individual believes that efforts are fruitless, coupled with a low perception of ability and the perception that the task is too difficult (Andrews & Dubus, 1978; Nicholls & Miller, 1983), a pattern of learned helplessness results and motivation is adversely affected. Consistencies between past, present, and future performances are expected as low ability is either recognized or anticipated (Andrews & Debus, 1978; Walling & Martinek, 1995).

Fredenburg, Lee, and Solmon (2001) define ability as "having the power, talent, or skill to do something" (p.233). This information is used to assess basic understanding and actual knowledge of the task along with one's level of skill (Nicholls, 1984) when referenced against

the self or others. Low perception of ability and tasks rated as difficult increase the anticipation of personal failure on future tasks. Success on tasks that are assessed as low in difficulty do not reinforce positive perceptions of ability. However, an increased expectation of difficulty can produce anticipated success when it is associated with a perception of high ability (Nicholls, 1984). When one's ability and task difficulty are judged according to others' performances and abilities, and are dependent upon the demands of the tasks, future expectations for success or failure are affected. An individual's attribution orientation influences perceptions of ability, but remains dependent upon affect as referenced against the self or others.

Failure attributed to lack of ability places blame on the self. An individual who experiences uncontrollability and attributes failure to lack of ability places the blame on the self and motivation on future tasks is decreased (Walling & Martinek, 1995). Prolonged failures and/or maladaptive attributions increase one's susceptibility to learned helplessness. Ineffective strategies are adopted and essentially, the individual develops an attitude contributing to the lack of self-esteem, motivation, and persistence required for success.

Self-efficacy

Self-efficacy, a person's belief that he/she can successfully achieve a certain outcome (Bandura, 1977), is often the first step that enables one to grasp a better understanding of learned helplessness (George, Feltz, & Chase, 1992; Miller & Norman, 1981; Martin, 2002). Bandura's (1977) seminal work in this area demonstrated that a person may assess his/her capabilities, form an opinion of his/her performance due to previously experienced successes or failures, and pattern future attempts around this belief system. A person's observation and evaluation of others, things, and events can influence his/her actions, choices, effort expenditure, and

perseverance on various activities (Martinek & Griffith, 1994; Schunk, 1983; Travers, Elliot, & Kratochwill, 1993). Motivation is cognitively assessed and reinforced based upon this self-evaluation (Bandura, 1977). When individuals believe they do not have adequate ability to be successful in a situation, they will likely falter on future tasks.

Learned Helplessness in Physical Activity Settings

Researchers in the field of kinesiology have used the learned helplessness framework to investigate adaptive and maladaptive achievement patterns on skill performance, and participation, or lack thereof, in physical exercise and physical education. As in academic settings, learned helplessness may develop during childhood or adolescence and continue through the teen years into adulthood. Effects of learned helplessness are evident during childhood in physical education (Martinek & Griffith, 1994) as well as adulthood (Duda & Tappe, 1988). Adults' physical exercise patterns also demonstrate maladaptive patterns including no exercise, limited activity, or lack of persistence (McAuley, 1991) which contribute to a pattern of learned helplessness. Individuals suffer academically when learned helplessness appears in the classroom, but when self-esteem and self-efficacy are affected in physical activity, health is ultimately undermined and an unhealthy lifestyle evolves (Huang et al., 2003).

Researchers have also focused on how learned helplessness affects skill acquisition. A series of studies by Gernigon and his colleagues (Gernigon & Fleurance, 1998; Gernigon, Thill, & Fleurance, 1999; Gernigon, Fleurance, & Reine, 2000) investigated the effects of task difficulty and effort attributional comments on the alleviation of learned helplessness. They examined the effect of controllability by manipulating experimental conditions with regard to contingent and non-contingent outcomes. They found a correlation between self-worth and

personal ability on tasks involving a high level of difficulty. Individuals were more motivated and had higher levels of perceived competence after successes on more challenging tasks. As in other situations, uncontrollability, failure, internal and stable attributions, and decreased self-efficacy fostered learned helplessness in the three studies.

The lack of physical activity during adulthood does not necessarily evolve from learned helplessness, as there are many factors that influence decisions about being active. However, frequent exercisers report higher levels of efficacy and make more internal and personally controllable attributions (McAuley, 1991). Perceptions of ability regarding new tasks or activities at any age may influence choices of or continuation of an activity. Learned helplessness could provide a framework to understand why some individuals cannot successfully initiate and sustain a regular exercise program. Adults draw from past experiences, either positive or negative, and these influence effort, thought processes, and persistence in exercise sessions (McAuley, 1991).

When individuals do not believe that their behavior, that is, engaging in physical activity, will produce positive health benefits, such as weight loss and improved physical function, then they are unlikely to persist in a program. Although learned helplessness has not been used as a framework for investigation in this area, Duda and Tappe (1988) found that middle-aged and elderly adults were not likely to be active unless they saw a direct relationship between their involvement in exercise and personal gain as well as recognition from others regarding their activity. This finding is consistent with a learned helplessness pattern and supports the assertion that this framework could prove to be useful in understanding physical activity choices, especially for women.

Little is known, however, about how learned helplessness may affect physical activity behaviors and choices, but this perspective appears to have the potential to provide a framework to understand why some women do not choose to adopt and maintain an active lifestyle (Yee et al., 2003). Various components of learned helplessness need to be investigated. Social comparison and pessimism are two of those. A third is the effect of non-contingent outcomes on expectations, performance and persistence on subsequent tasks (Gernigon, Fleurance, & Reine, 2000).

Gernigon and his colleagues (Gernigon & Fleurance, 1998; Gernigon et al. 1999, 2000) compared contingent and non-contingent outcomes on the performance of a motor task, and although their findings provided some insight into the effect of uncontrollable outcomes, several questions remain unanswered. In these studies, the noncontingent outcome was negative, and the effect of positive noncontingent outcome (positive feedback that is not performance-based) on efficacy and performance has gone largely unexplored. In a preliminary study, Gill and Solmon (2004) investigated the effect of perceived controllability on expectations for success by comparing three experimental conditions: contingent outcomes, non-contingent positive outcomes, and non-contingent negative outcomes. Using a muscular endurance task, as expected they found no differences between groups on the initial task, prior to receiving feedback. Consistent with the theoretical prediction, individuals in the negative non-contingent group had significantly lower expectations for success on a subsequent task than those who experienced positive non-contingent outcomes. An unexpected outcome, however, was that both non-contingent groups outperformed the contingent group on the second task. Though this study included only a small sample, this unexpected outcome needs to be more closely examined to gain a clearer understanding of how controllability affects efficacy in an exercise setting.

A consistent shortcoming of investigations of learned helplessness in experimental settings has been the failure to consider personal dispositions toward learned helplessness in the design. Individuals have been randomly assigned to experimental conditions that are designed to produce a learned helplessness pattern. There is evidence, however, that some individuals employ strategies in a framework of attributional egotism to protect their self-esteem, and consequently avoid learned helplessness in the face of failure (Witkowski & Stiensmeier-Pelster, 1998). Seligman (1990) indicates that individuals have explanatory styles varying from pessimism to optimism that reflect their habitual thoughts regarding successes and failures. It is important that researchers begin to consider how individual differences in explanatory styles interact with experimental manipulations.

The purpose of this study was to investigate the effect of controllability on causal attributions, efficacy, and performance in an exercise setting, using a design that accounts for explanatory styles. Five specific research questions were addressed. They are listed below, along with the hypothesis that were tested.

1. What is the relationship between explanatory style and self-efficacy?

It was predicted that individuals with optimistic explanatory styles would report higher levels of self-efficacy on the initial task.

2. How does controllability affect causal attributions?

It was hypothesized that contingent outcomes would produce more internal, controllable, and stable attributions on the initial task than non-contingent outcomes.

3. What effect does controllability on an initial task have on self-efficacy and performance on a subsequent task?

It was predicted that non-contingent positive outcomes on the initial task would produce the highest levels of self-efficacy, and that contingent outcomes would produce higher levels of self-efficacy than non-contingent negative outcomes. It was also predicted that the performance of the non-contingent negative group would be inferior to the other groups.

4. What are the residual effects of initial controllability on causal attributions on a subsequent task?

It was predicted that contingent outcomes would produce more internal, controllable, and stable attributions on a subsequent task than noncontingent outcomes.

5. How does explanatory style interact with controllability?

It was hypothesized that pessimistic individuals would be less efficacious than optimistic individuals, and that non-contingent negative outcomes would be more detrimental to the causal attributions and self-efficacy of pessimistic individuals than optimistic individuals. It was also predicted that optimistic individuals would perform better than pessimistic individuals.

Operational Definitions

Explanatory style - the habitual manner in which one explains outcomes of events

Optimism - the belief that negative events, created by circumstances, bad luck, or other people, are temporary setbacks; motivation is not undermined (Seligman, 1990)

Pessimism - the belief that negative events, created by personal fault, will last a long time; motivation is undermined (Seligman, 1990)

Self-efficacy - a person's belief that he/she can successfully achieve a certain outcome (Bandura, 1977)

Causal attributions - explanations of beliefs regarding causes of successes or failures that influences performances, expectancies, and affect (Weiner, 1979, 1985)

Controllability - causal perceptions characterized on a continuum between controllable and uncontrollable based upon self-efficacy, causal attributions, and explanatory style that contributes to either adaptive or maladaptive patterns of behavior (Weiner, 1985)

Globality - causal perceptions characterized as either specific to a domain or generalized across events (Abramson et al., 1978)

Stability - causal perceptions characterized on a continuum from stable to unstable that produce expectations for future success or failure (Weiner, Frieze, Klukla, Reed, Rest, & Rosenbaum, 1971)

Locus of causality - causal perceptions characterized as either internal or external indicating variance in controllability of tasks (Weiner, 1985)

CHAPTER 2: METHODOLOGY

Participants

One hundred fifty (150) females, ages 18 to 40, enrolled in undergraduate courses were the participants in this study. They completed the Par-Q, a health survey and a consent form prior to beginning the tasks. Participants who disclosed musculoskeletal injuries, were under the current care of a physician, had been advised by a physician to refrain from exercise, or were collegiate athletes were excluded from the study.

Tasks

Hand Grip. This task was a test of muscular strength evaluating one's hand grip (Canadian Physical Activity, Fitness, and Lifestyle Appraisal [CPAFLA], 1996). Participants were given a hand grip dynamometer to hold at the side of the body (basic anatomical position), parallel to the thigh. As an isometric exercise, very little movement was involved during completion of this skill, but participants were encouraged to squeeze the handle as hard as they could. All participants were given identical information necessary to complete the task.

This task was selected as the initial task for several reasons. The participants were generally unfamiliar with the hand grip task, and although the hand grip task requires both ability and effort, participants did not have a reference point to evaluate their performance in normative terms. Therefore, the individuals were more likely to believe the feedback provided regardless of their treatment condition.

To establish objectivity, an assistant was trained to administer the task. The co-investigator was present for 20% (30 participants) of the testing sessions to verify scores on the hand grip task. The intraclass correlation coefficient, calculated to establish inter-rater reliability, was .88.

Wall Squat. This muscular endurance exercise required the individual to initially position her torso against a wall with feet extended from the base of the wall (Safrit, 1995). Participants stood against a flat wall and slid their bodies down the wall until they were in a seated stance (equivalent to sitting in a chair) with the thighs parallel to the floor. The lower body/legs were held at a 90 degree angle (hip and knee flexion); the knees were aligned with the ankles, but extended no further than the toes. The toes remained in an anatomical position with no inward or outward rotation. The recorded time for this task started immediately when the correct position was attained and the trial time ended when the individual stood or moved from the designated stance.

This task was selected to investigate contingency on a subsequent task. The task performance was dependent on participants' training, to some degree, but relied on effort to maintain the position. Performance on the wall squat was largely dependent upon effort exerted for that task. The results of a pilot study, as well as an earlier study by Gill and Solmon (2004) indicated that this task was one on which the willingness to exert effort had a major influence on performance. Inter-rater reliability was also established on the administration of the wall squat through the use of a second evaluator. The second evaluator was present for 20% of the testing to time participants on their wall squat tasks. The intraclass correlation coefficient was .95.

Instrumentation

Explanatory Style Questionnaire. Seligman (1990) developed a questionnaire to assess explanatory style which measured a person's habit of thought regarding successes or failures. This Explanatory Style Questionnaire consists of 48 items and measured permanence (stability), pervasiveness (globality), and personalization (locus of causality). Each dimension is divided

into both “Good” and “Bad” questions (eight from each category) for a total of 16 questions per dimension. Items from each dimension are dispersed throughout the questionnaire and test for both optimism (Good) and pessimism (Bad) within the dimensions. Participants read each item and selected from one of two responses, choosing the item that was most likely to apply to them. Sample items and responses for each dimension are presented in Table 1.

Table 1 Examples of Questions and Responses from the Explanatory Style Questionnaire

Dimension			Optimistic Response	Pessimistic Response
Permanence				
	(G)	You are frequently asked to dance at a party.	I am outgoing at parties.	I was in perfect form that night.
	(B)	You fall down a great deal while skiing.	Skiing is difficult.	The trails were icy.
Pervasiveness				
	(G)	Your doctor tells you that you are in good physical shape.	I make sure I exercise frequently.	I am very health-conscious.
	(B)	You lose a sporting event for which you have been training for a long time.	I’m not good at that sport.	I’m not very athletic.
Personalization				
	(G)	You were extremely healthy all year.	Few people around me were sick, so I wasn’t exposed.	I made sure I ate well and got enough rest.
	(B)	Your doctor tells you that you eat too much sugar.	You can’t avoid sugar, it’s in everything.	I don’t pay much attention to my diet.

The scores for each subscale were summed to generate six subtotals. Higher scores on

the good subscales reflected optimism, while higher scores on the bad subscales reflected pessimism. Seligman provided the following classification system for the subscales:

Table 2 Explanatory Style Questionnaire Subscale Classifications

Good Subscales	Bad Subscales	Rating
7 or 8	0 - 1	Very optimistic
6	2 - 3	Moderate optimistic
4 or 5	4	Average
3	5 or 6	Quite pessimistic
0 - 2	7 or 8	Very pessimistic

Subscales can be analyzed separately or could be combined into a composite score by summing the scores of the good subscales and then subtracting the sum of the bad subscales from their total. The classification system for the composite score is found in Table 3.

Table 3 Explanatory Style Questionnaire Composite Score Classifications

G - B Score	Rating
above 8	Very optimistic across the board
6 - 8	Moderately optimistic
3 - 5	Average
1 - 2	Moderately pessimistic
0 or below	Very pessimistic

Self-efficacy. A five item instrument was used to assess the level and strength of self-efficacy (Bandura & Adams, 1977). After participants had seen a video of each of the tasks, they were asked to report their levels of self-efficacy by answering a generic statement: “In this wall squat, I expect that I will be able to obtain each of the following results.” Five statements were provided indicating different scores (arranged from lowest to highest: needs improvement, fair,

good, very good, excellent). The first item was “I will be able to perform the task to obtain a ‘needs improvement’ rating.” Participants answered each question with either a “yes” or “no” rating followed by a scale ranging from 10% (not sure) to 100% (totally sure). This scale indicated degree of confidence toward obtaining the designated level. The level of self-efficacy was calculated by the total number of “yes” answers provided and the strength of self-efficacy expectations was calculated by summing the percentages for each “yes” answer provided (Gernigon, Fleurance, & Reine, 2000).

Causal Attributions. Causal attributions were evaluated using an open-ended question followed by the Causal Attribution Questionnaire (Gernigon, Thill, & Fleurance, 1999). The initial open-ended question allowed the participants to relate their perceived main causes for performance on both tasks. Personalization (locus of causality), globality, and permanence (stability) were calculated based on the scores for the “reason for performance” using a 9-point Likert-type scale for nine questions (three from each dimension). The anchors for the scale represented the extremes of the continuums for permanence, controllability, and personalization.

Table 4 Example of Responses for the Causal Attribution Questionnaire

Dimension	Internal, Stable, & Controllable Attributions	External, Unstable, & Uncontrollable Attributions
Locus of Causality	Reflects an aspect of yourself	Reflects an aspect of this situation
Control	You meet in numerous situations	You encounter only in this situation
Stability	Is always present	Is not always present

Questions for each dimension were summed and the responses for each dimension were summed for a total score. High scores on the dimension subscales indicated internal, controllable, and stable causes for performance.

Procedures

Participants completed the Explanatory Style Questionnaire and were randomly assigned to one of three treatment conditions: Contingent, Non-Contingent Positive and Non-Contingent Negative. As each person (regardless of group assignment) entered the room for testing, she was told that the purpose of the study was to validate norms on strength tasks for college age female students.

Participants viewed a video demonstration of the hand grip task which provided an overview of the exercise. Basic instruction relating to body positioning was provided during the video to emphasize proper mechanics. Modeling is an effective tool allowing novices to glean information regarding the performance of a task, the limbs involved, and the action goal (Schmidt & Lee, 1998). After the demonstration, the Self-efficacy Expectations Questionnaire was completed. The participants were asked to indicate their degrees of confidence for attaining various levels on the hand grip task. Once the questionnaire was completed, each participant was asked if she had any questions. Participants were asked to perform two trials per hand on the dynamometer. The average score for each hand was recorded. During the trial, no feedback or encouragement was provided.

The safety of the participants was an important consideration. An exercise specialist was available during the test to ensure a proper warm-up, including flexibility exercises, was completed to prevent injuries. Upon completion of the study, the exercise specialist also guided the participants in more stretching exercises before they left the testing facility.

All participants completed the initial task under the same conditions. They were not given any indication of the average score prior to completing the task. All participants were

asked to complete the task, and no feedback, encouragement, or information of any kind was provided by the tester during the completion of the task.

After completing the task, participants assigned to the Contingent group received normative information regarding performance of the hand grip task. They were given their actual score, force generated in pounds, and then told where their performance fell in the categories of age grouped norms, ranging from “needs improvement” to “excellent” (CPAFLA, 1996). The Non-Contingent Positive group was given positive feedback on their performance, regardless of their recorded performance. They were praised for their efforts and told that their performance was in the “excellent” category. Participants in the Non-Contingent Negative group, regardless of their score, were given negative feedback regarding performance. Participants were told that their performance was in the “needs improvement” category. Actual scores (including categories) were recorded for all groups.

After completing the trial, all participants completed the Causal Attribution Questionnaire and were then asked to complete a second task. They were again told that their help was needed in a project related to the development of wall squat endurance norms for females aged 18 to 40. They watched a video demonstration of the wall squat task that included verbal instructions relative to the task. A Self-efficacy Expectation Questionnaire was administered to the participants to assess their degrees of confidence on the wall squat task. All participants, regardless of previously assigned groups, received identical instructions and information for this task. All participants were encouraged to attempt the task and maintain the position as long as possible. They were able to stop the activity when they could no longer maintain the position, by simply returning to a standing position. Once the participant indicated she was ready, the tester

assisted her in attaining the correct position. Upon completion of the wall squat, the participants were told their actual time and level of performance. The times for the categories were generated based on the pilot data and the study by Gill and Solmon (2004). The categories are found in Table 5.

Table 5 Wall Squat Categories Based upon Time

Time	Category
below 40 seconds	Needs Improvement
40-60 seconds	Fair
60-80 seconds	Good
80-110 seconds	Very Good
above 110 seconds	Excellent

Another Causal Attribution Questionnaire specific to this task was then completed. After finishing the second questionnaire for the wall squat, participants were thanked for their participation in the study. The nature of the study was then disclosed and questions were answered, if needed.

Data Analysis

A series of data analyses was used to answer the research questions. The specific analyses are described in relation to the research questions.

1. What is the relationship between explanatory style and self-efficacy?

Simple correlations between the overall score on the explanatory style and the level and strength of self-efficacy on the hand grip task (collected prior to the experimental treatment) were used to determine if optimism is associated with higher levels of initial self-efficacy.

2. How does controllability affect causal attributions?

A multivariate analysis of variance (MANOVA) was used to determine if the causal attributions differ by treatment group. The three subscales of the causal attributions (locus of causality, control, and stability) were the dependent variables. Explanatory style was entered as a covariate to account for individual variation in attributions. It was hypothesized that contingent outcomes would produce more internal, controllable, and stable attributions on the initial task than non-contingent outcomes.

3. What effect does controllability on an initial task have on self-efficacy and performance on a subsequent task?

A MANOVA was used to test for differences between treatment groups in levels of self-efficacy. The dependent variables were the level and strength of efficacy for the wall squat. An analysis of variance (ANOVA) was used to test for group differences on performance on the wall squat. It was predicted that non-contingent positive outcomes on the initial task would produce the highest levels of self-efficacy, and that contingent outcomes would produce higher levels of self-efficacy than non-contingent negative outcomes. It was also predicted that the performance of the non-contingent negative group would be inferior to the other groups.

4. What are the residual effects of initial controllability on casual attributions on a subsequent task?

A MANOVA was used to determine if the causal attributions differ by treatment group on the wall squat. The three subscales of the causal attributions (locus of causality, control, and stability) were the dependent variables. It was predicted that contingent outcomes would produce more internal, controllable, and stable attributions than noncontingent outcomes.

5. How does explanatory style interact with controllability?

To answer this research question, two groups were formed based on the scores of the explanatory style questionnaire. The upper third of the participants were classified as optimistic, and the lower third of the participants were classified as pessimistic. The middle third was not included in this analysis. A series of three 3 (Treatment group) X 2 (optimistic-pessimistic) MANOVAs were used to examine the interaction between explanatory styles and the treatment condition controllability. The dependent variables in the first MANOVA were the three subscales of the causality attributions for the hand grip (locus of causality, control, and stability). Level and strength of self-efficacy on the wall squat were the dependent variables in the second MANOVA, while the three subscales of the causality attributions for the wall squat were the dependent variables for the third MANOVA. Finally, a 3 (Treatment group) X 2 (optimistic-pessimistic) ANOVA was conducted using the scores from wall squat to test for differences in performance.

CHAPTER 3: RESULTS

Descriptive statistics and Cronbach alpha reliability coefficients for the variables in the study, where appropriate, are reported in Table 6. The presentation of the results is organized around the five hypotheses that were tested.

Table 6 Descriptive Statistics (N=150)

	Mean	Standard Deviation	Cronbach's
Explanatory Style	-.25	4.22	
HAND GRIP			
Self-efficacy			
1. Level	3.33	1.25	
2. Strength	197.23	116.68	
Causal Attributions			
1. Locus of causality	6.66	1.73	.651
2. Globality	6.38	1.60	.702
3. Stability	4.96	1.81	.531
Performance	57.74 kg	10.67	
WALL SQUAT			
Self-efficacy			
1. Level	3.03	1.46	
2. Strength	176.27	117.66	
Causal Attributions			
1. Locus of causality	7.00	1.58	.664
2. Globality	6.32	1.67	.735
3. Stability	4.62	1.56	.326
Performance	28.47 secs	18.95	

Explanatory Style and Self-efficacy

The relationship between explanatory style and self-efficacy was the focus of the initial research question. It was predicted that individuals with optimistic explanatory styles would report higher levels of self-efficacy on the initial task. The correlation coefficients between level and strength of self-efficacy on the hand grip task and overall explanatory style rating are reported in Table 7. This hypothesis was not supported, in that the relationship between explanatory style was positive, but weak and not statistically significant or meaningful.

Table 7 Simple Correlations for Self-efficacy and Explanatory Style

	Level of Self-efficacy	Strength of Self-efficacy
Level of Self-efficacy		
Strength of Self-efficacy	.799**	
Explanatory Style	.148	.188

** $p < .01$

Controllability and Causal Attributions

The second research question addressed the effect of controllability on causal attributions. It was hypothesized that contingent outcomes would produce more internal, controllable, and stable attributions on the initial task than non-contingent outcomes. Means and standard deviations by treatment group are reported in Table 8. The multivariate analysis of variance (MANOVA), with locus of causality, globality, and stability attributions on the hand grip as the dependent variables, revealed a significant effect for treatment group [Wilks' Lambda .83, $F(6, 290) = 4.67$, $p < .001$]. Explanatory style was initially entered into the model as a covariate, but did not account for a significant portion of the variance, so it was deleted from further analyses.

Univariate follow-ups yielded significant differences between groups on locus of

causality [$F(2,147)=4.20, p=.017$] and stability [$F(2,147)=5.56, p=.004$] dimensions. Student-Newman Keuls procedures were used as the post hoc tests. Individuals in the contingent group reported more internal locus of causality attributions than the non-contingent positive group. The non-contingent negative group did not differ from either of the other groups. The three groups did not differ on globality attributions. Individuals in the non-contingent negative group reported less stable attributions than either the contingent or the non-contingent positive groups, but the contingent and non-contingent positive groups were not significantly different from one another. These results provide partial support for the second hypothesis.

Table 8 Group Means and Standard Deviations for Causal Attributions After Hand Grip*

Groups	Locus of causality		Globality		Stability	
	Mean	SD	Mean	SD	Mean	SD
Contingent (n=50)	7.09 ^a	1.72	6.45	1.66	5.27 ^a	1.76
Non-contingent positive (n=50)	6.13 ^b	1.83	6.65	1.35	5.32 ^a	1.72
Non-contingent negative (n=50)	6.75 ^{ab}	1.50	6.04	1.73	4.27 ^b	1.79

*column means with differing superscripts are significantly different from one another

Controllability and Self-efficacy

The third research question investigated the effect of controllability on an initial task on self-efficacy and performance of a subsequent task. It was predicted that non-contingent positive outcomes on the initial task would produce the highest levels of self-efficacy, and that contingent outcomes would produce higher levels of self-efficacy than non-contingent negative outcomes. Group means and standard deviations for these variables are reported in Table 9. The MANOVA with strength and level of self-efficacy on the wall squat as dependent variables revealed a significant group effect [Wilks' Lambda .85, $F(4, 292)=5.98, p<.001$]. Univariate follow-ups

indicated that the groups differed on both level [$F(2, 147)=9.46, p<.001$] and strength [$F(2, 147)=10.80, p<.001$] of self-efficacy for the subsequent task. Student-Newman Keuls post hoc tests indicated the non-contingent positive group reported higher levels of self-efficacy than both the contingent and the non-contingent negative groups. The non-contingent positive group also reported higher strength of self-efficacy than the non-contingent negative group, but was not significantly different than the contingent group. Taken together, these results suggest that non-contingent negative outcomes had a detrimental effect on self-efficacy, which is consistent with the hypothesis. As predicted, non-contingent positive outcomes had a positive effect on self-efficacy.

With regard to performance on the subsequent task, it was hypothesized that the times for the wall squat would be inferior for the non-contingent negative group, as compared to the other conditions. The ANOVA testing for group differences on the wall squat yielded a significant main effect [$F(2, 147)=22.37, p<.001$]. Student-Newman-Keuls post-hoc tests indicated the contingent group outperformed both non-contingent groups, but no significant differences were found between the non-contingent groups on the wall squat.

Table 9 Group Means and Standard Deviations of Self-efficacy*

Groups	Level of Self-efficacy		Strength of Self-efficacy		Time on Wall-Squat	
	Mean	SD	Mean	SD	Mean	SD
Contingent (n=50)	2.90 ^b	1.40	177.60 ^b	104.99	41.30 ^a	26.01
Non-contingent Positive (n=50)	3.68 ^a	1.44	227.00 ^a	140.31	23.28 ^b	11.50
Non-contingent Negative (n=50)	2.50 ^b	1.30	124.20 ^c	77.41	20.84 ^b	5.35

***column means with differing superscripts are significantly different from one another**

Residual Effects of Controllability on Causal Attributions

The focus of the fourth research question was the investigation of the residual effects of initial controllability on the causal attributions for a subsequent task. It was predicted that contingent outcomes would produce more internal, controllable, and stable attributions on a subsequent task, and this hypothesis was not supported. The MANOVA [Wilks' Lambda .98, $F(6, 290)=.37, p=.90$] revealed there were no residual effects from the treatment evident on causal attributions for the wall squat. Means and standard deviations are reported in Table 10.

Table 10 Group Means and Standard Deviations of Causal Attributions After Wall Squat

Groups	Locus of causality		Globality		Stability	
	Mean	SD	Mean	SD	Mean	SD
Contingent (n=50)	7.11	1.74	6.41	1.63	4.64	1.69
Non-contingent positive (n=50)	6.82	1.46	6.17	1.46	4.70	1.63
Non-contingent negative (n=50)	7.09	1.54	6.38	1.91	4.53	1.37

Interaction Between Explanatory Style and Controllability in Subgroups

The interaction of explanatory style and controllability was the focal point of the final research question. It was hypothesized that pessimistic individuals would be less efficacious than optimistic individuals, and that non-contingent negative outcomes would be more detrimental to the causal attributions and self-efficacy of pessimistic individuals than optimistic individuals. It was also predicted that optimistic individuals would perform better than pessimistic individuals. Based on their scores on the Explanatory Style Questionnaire, individuals were classified to form an optimistic group and a pessimistic group. The upper third of the sample was classified as optimistic, and the lower third was classified as pessimistic. The middle third of the sample was not included in this data analysis.

Self-efficacy. First, a one way MANOVA was conducted to test for differences in initial levels of self-efficacy. This yielded a significant effect for explanatory style [Wilks' Lambda .925, $F(2,97)=3.904$, $p=.023$], and univariate follow-ups indicated that optimistic individuals had higher levels [$F(1,98)=3.847$, $p=.053$] and strength [$F(1,98)=7.72$, $p=.007$] of self-efficacy on the initial task. Means and standard deviations for efficacy variables on the initial task are reported in Table 11.

Table 11 Initial Levels of Self-Efficacy

Group	Level		Strength	
	Mean	SD	Mean	SD
Optimistic	3.58	1.35	227.08	130.83
Pessimistic	3.09	1.18	164.26	88.14

Next, a 3 (treatment group) X 2 (explanatory style) MANOVA was used to examine the interaction of controllability and explanatory style on the level and strength of self-efficacy on the subsequent task. The main effects for both treatment group [Wilks' Lambda .906, $F(4,186)=2.362$, $p=.05$] and explanatory style [Wilks' Lambda .928, $F(2,93)=3.624$, $p=.03$] were both significant, but the interaction [Wilks' Lambda .969, $F(4,186)=.735$, $p=.569$] was not. Univariate follow-ups revealed that, as in the initial task, optimistic individuals had higher levels [$F(1,94)=5.239$, $p=.024$] and strength [$F(1,94)=7.00$, $p=.010$] of self-efficacy than pessimistic individuals. The treatment effect that was evident in the analysis for the entire sample reported earlier was evident in this analysis as well. The non-contingent positive group had a higher level [$F(2,94)=3.697$, $p=.028$] and strength [$F(2,94)=4.086$, $p=.020$] of self-efficacy than the non-contingent negative group. For the analysis of this subsample, the contingent group did not differ from either of the non-contingent groups. These results indicate, however, that controllability did

not interact with explanatory style to affect self-efficacy. Means and standard deviations by group are reported in Table 12.

Table 12 Means and Standard Deviations for Self-efficacy on the Wall Squat by Explanatory Style*

Explanatory Style	Level		Strength	
	Mean	SD	Mean	SD
Optimistic (n=53)	3.34	1.38	199.81	121.73
Pessimistic (n=47)	2.66	1.43	139.57	91.27
Treatment Group				
Contingent (n=34)	2.97 ^{ab}	1.45	177.65 ^{ab}	108.85
Non-contingent Positive (n=31)	3.55 ^a	1.50	209.68 ^a	133.65
Non-contingent Negative (n=35)	2.60 ^b	1.26	131.71 ^b	79.58
Total (n=100)	3.02	1.44	171.50	112.10

***column means with differing superscripts are significantly different from one another**

Causal Attributions. For causal attributions after the initial hand grip task, the MANOVA yielded a significant main effect for controllability [Wilks' Lambda .845, $F(6,184)=2.70$, $p=.015$]. Univariate follow-ups revealed that the groups differed only on the locus of causality dimension [$F(2,94)=3.958$, $p=.022$], with the contingent group having more internal attributions than the non-contingent negative group. The main effect for explanatory style [Wilks' Lambda .972, $F(3,92)=.89$, $p=.45$] and the interaction between controllability and explanatory style [Wilks' Lambda .911, $F(6, 184)=1.457$, $p=.195$] were not significant. The MANOVA examining causal attributions on the subsequent task, the wall squat, revealed no significant group effects [controllability: Wilks' Lambda .976, $F(6,184)=.367$, $p=.899$; explanatory style: Wilks' Lambda .958, $F(3,92)=1.356$, $p=.261$], and the interaction was also not significant [Wilks' Lambda .912, $F(6, 184)=1.438$, $p=.202$]. Means and Standard deviations for causality attributions are reported in Tables 13 and 14.

Table 13 Means and Standard Deviations of Causal Attributions After Hand Grip

Group	Locus of causality		Globality		Stability	
	M	SD	M	SD	M	SD
Optimism (n=53)	6.93	1.54	6.61	1.67	5.35	1.97
Treatment Group						
Contingent (n=19)	7.58	1.39	6.63	1.64	5.91	1.70
Non-contingent Positive (n=17)	6.69	1.49	7.12	1.31	5.63	2.17
Non-contingent Negative (n=17)	6.43	1.58	6.08	1.93	4.43	1.82
Pessimism (n=47)	6.65	1.60	6.23	1.43	4.77	1.55
Treatment Group						
Contingent (n=15)	6.98	1.67	6.40	1.56	4.73	1.34
Non-contingent Positive (n=14)	5.76	1.48	6.10	1.02	5.10	1.02
Non-contingent Negative (n=18)	7.07	1.42	6.19	1.65	4.54	2.02

Performance. An ANOVA was used to determine if initial performance differed as a function of explanatory style. There was no difference between performance on the hand grip task between the optimistic and pessimistic individuals [$F(1, 98)=1.316, p=.254$]. To examine the interaction between explanatory style and controllability, a 3 X 2 ANOVA was conducted using wall squat scores to test for differences in performance. There was no significant group effect for explanatory style [$F(1,100)=.02, p=.90$]. A significant group effect was evident for controllability [$F(2, 94)=13.625, p <.001$]. As with the larger sample, the contingent group outperformed both non-contingent groups. The interaction between controllability and explanatory style was not significant [$F(2, 94)=.079, p=.924$].

Table 14 Means and Standard Deviations of Causal Attributions After Wall Squat

Subgroup	Locus of causality		Globality		Stability	
	M	SD	M	SD	M	SD
Optimism						
Contingent (n=19)	7.18	1.58	6.50	1.51	4.42	1.86
Non-contingent Positive (n=17)	6.61	1.62	6.80	1.28	4.98	2.16
Non-contingent Negative (n=17)	7.22	1.55	6.35	1.98	4.59	1.02
Total	7.01	1.58	6.55	1.59	4.65	1.73
Pessimism						
Contingent (n=15)	6.84	1.99	6.02	1.84	4.71	1.60
Non-contingent Positive (n=14)	6.83	1.04	5.17	1.29	4.26	1.21
Non-contingent Negative (n=18)	6.98	1.44	6.54	1.62	4.59	1.66
Total	6.89	1.51	5.97	1.67	4.53	1.50

Table 15 Means and Standard Deviations for Performance

Group	Grip Score (kg)		Squat time (secs)	
	M	SD	M	SD
Optimism (n=53)	56.10	9.98	28.26	18.51
Contingent (n=19)	56.86	10.83	39.26	22.27
Non-contingent positive (n=17)	58.50	16.76	23.88	8.93
Non-contingent negative (n=17)	52.87	9.72	20.35	6.61
Pessimism (n=47)	58.48	10.76	27.92	18.74
Contingent (n=15)	54.78	9.40	41.27	28.27
Non-contingent positive (n=14)	63.18	13.20	22.57	7.37
Non-contingent negative (n=18)	57.92	8.78	20.94	4.32

CHAPTER 4: DISCUSSION

The purpose of this study was to investigate the effect of controllability on causal attributions, efficacy, and performance in an exercise setting using a design that accounted for explanatory styles. Other studies have used controllability as a means to investigate various aspects of the learned helplessness theory, but two unique aspects were incorporated in the design of this study. The influence of explanatory style is accounted for, and both positive and negative non-contingent outcomes were investigated. The discussion is organized around the five research questions.

Explanatory Style and Self-efficacy

The initial hypothesis that a positive relationship would exist between optimistic explanatory styles and high levels of self-efficacy was not supported. Higher levels of optimism were not associated with higher levels of self-efficacy on the initial task. The age of the participants may be a factor for this inconsistent finding as previous research (LaForge & Cantrell, 2003) has suggested that life experiences may inoculate college students therefore preparing them for different stressors. These female college students may have been able to accurately evaluate themselves and their capabilities, and rate their levels and strength of self-efficacy independently of their explanatory style.

Controllability and Causal Attributions

The hypothesis that contingent outcomes would produce more internal, controllable, and stable attributions on the initial task was partially supported. Participants in the contingent group reported more internal locus of causality attributions and more stable attributions, but not exactly as was hypothesized. It was predicted that the non-contingent negative group would

report more external locus of causality attributions after receiving negative feedback (Seligman, 1990), but this was not the case. The females in this study who received non-contingent positive feedback had lower internal attributions than the contingent group, suggesting that when they were told they were successful, they were more likely to attribute that success to external, rather than internal factors. This is consistent with the characterization of Dweck and her colleagues (Dweck, 1975, 86; Dweck & Reppucci, 1973; Elliott & Dweck, 1988) that females are often at risk for a learned helpless pattern of behavior. The contingent group did not report more internal attributions than the non-contingent negative group and that, too, is consistent with Dweck's work. Females receiving negative feedback tended to have higher internal attributions, like the contingent group. The role of cognitions and performance outcomes can affect changes in performance, either positively or negatively (Chandler, Lee, & Pangilly, 1997; Rudisill, 1989); quite possibly, cognitions ultimately played a role as the non-contingent negative participants rated performance as more internal.

With regard to the stability dimension, the results do not, however, seem to be consistent with a learned helpless pattern. The individuals who received negative non-contingent feedback had less stable attributions than those who received contingent feedback and those who received non-contingent positive feedback. As pointed out by Abramson, Teasdale, and Seligman (1978), the less stable an event is perceived, the more change is expected in performance. This represents a more adaptive attributional pattern, in that participants receiving negative feedback seemed to believe that the outcome was something that could be changed. The differences between the contingent and non-contingent negative groups are consistent with their work.

Globality, a fourth dimension of attribution theory, did not differ as a function of

controllability. The degree to which participants viewed the first task (hand grip) as a specific incident that would or would not generalize across performance in other settings was not affected by the type of feedback they received.

Controllability and Self-efficacy

Based on the learned helplessness theory, it was hypothesized that non-contingent positive outcomes would produce higher levels and strength of self-efficacy as well as increased performance on a subsequent task (wall squat). Self-efficacy provides a theoretical basis for learned helplessness (George, Feltz, & Chase, 1992; Martin, 2002) as individuals' beliefs about the likelihood of success or failure on future events is influenced by cognitions, assessment of capabilities, and opinions of performance (Bandura, 1977). The non-contingent positive group reported a higher level and strength of self-efficacy for the second task than the contingent and non-contingent negative groups, consistent with previous research. It was clear that the non-contingent negative group was adversely affected, in that they were lower in strength of efficacy than either of the other groups. This group's belief system was negatively influenced and their scores were consistent with a learned helpless pattern (Seligman, 1975; 1990). Individuals who received non-contingent feedback (uncontrollable) had lower expectations and ultimately lower performance on a subsequent task. Motivation was undermined (Bandura, 1977) and performance scores reflected a lack of effort. This is consistent with the work of Rotter (1966) as internal attributions demonstrate an adaptive pattern of behavior thus leading to the continuation of an activity. External attributions, coupled with negative feedback, foster a maladaptive pattern of behavior that can undermine performance (Firmin, Huang, Copella, & Clark, 2004).

It is of interest to note that the contingent group outperformed both of the non-contingent

groups on the second task. The wall squat was selected as the second task because, based on previous research, this was a task on which effort has a powerful influence on performance scores. These results suggest that when the feedback provided on an initial task is contingent on performance, individuals are more likely to realize that it is important to exert effort to do well. Consequently, on the subsequent task, they were more likely to exert effort, as reflected by their superior performance. This is consistent with Gernigon, Fleurance, and Reine (2000) and Gernigon, Thill, and Fleurance (1999) that contingent outcomes lead to higher performances than non-contingent outcomes.

It was not predicted that the performance of the non-contingent positive group would be adversely affected on the subsequent task. These findings suggest that when individuals are given positive feedback, not based on actual performance, they may not exert maximal effort on subsequent tasks. This is consistent with Dweck (1975) that improvement is inconsistent after positive feedback, regardless of performance.

Residual Effects of Controllability on Causal Attributions

The fourth research question focused on residual effects of initial controllability on causal attributions on a subsequent task. It was predicted that contingent outcomes would produce more internal, controllable, and stable attributions on the wall squat task after receiving appropriate normative feedback regarding the hand grip task. This hypothesis was not supported as no significant differences were found among the three groups. Although performance on the task differed as a function of the treatment, causal attributions regarding performances did not. This is not consistent with previous investigations of learned helplessness (Abramson et al., 1978; Gernigon & Fleurance, 1998) where causal attributions under uncontrollable conditions

contributed to both motivational and performance deficits. In this study, there were no residual effects on causal attributions for a task when feedback was contingent on performance.

Interaction Between Explanatory Style and Controllability in Subgroups

To test the final hypothesis, participants were categorized based upon their overall explanatory styles. Participants who scored as pessimistic or optimistic (lower and upper thirds, respectively) were included in this analysis. It was predicted that pessimistic individuals would not be as efficacious as optimistic individuals, and that non-contingent negative outcomes would be more detrimental to the causal attributions and self-efficacy of pessimistic individuals than optimistic individuals. It was also expected that optimistic individuals would outperform pessimistic individuals on both tasks.

Self-efficacy. Optimistic participants were found to be more efficacious as they rated themselves with higher levels and strength of self-efficacy for both tasks. It is of interest to note that the simple correlations between explanatory style and both level and strength of self-efficacy were not meaningful, suggesting that explanatory style is unrelated to efficacy. When the two extreme groups are considered, however, there is evidence that optimistic individuals are more efficacious than pessimistic individuals.

There was no evidence, however, that there was an interaction between explanatory style and controllability. This is the first investigation to examine how entry characteristics such as explanatory style might interact with controllability. Although we provide evidence that optimistic individuals have higher levels of efficacy than pessimistic individuals, the experimental manipulation of controllability did not affect optimistic and pessimistic individuals differentially. It is possible that the treatment, although of sufficient strength to affect causal

attributions on an initial task, and efficacy levels on a subsequent task, were not strong enough to interact with explanatory style.

Causal Attributions. Causal attributions did not appear to vary as a function of explanatory style, and there was no interaction between explanatory style and causal attributions. It was hypothesized that pessimistic participants in the non-contingent negative condition would adopt maladaptive attributions thus increasing susceptibility to learned helplessness (Walling & Martinek, 1995). Causal attributions were not affected on the wall squat, regardless of explanatory style and treatment group. There was no link found between the habitual explanations for performance and the conditions of controllability for either task. Without the interaction between controllability and explanatory style, the hypothesis that pessimistic individuals would be negatively affected by non-contingent negative outcomes was not supported. Again, although the findings do not support the theoretical predictions, it is possible that the experimental conditions associated with the treatment were not strong enough to interact with explanatory style.

Performance. Optimistic and pessimistic individuals did not differ from each other on the performance of either task, and, as with self-efficacy and causal attributions, there was no interaction between controllability and explanatory style. It was anticipated that optimistic individuals would outperform pessimistic individuals, but in contrast to theoretical predictions, a pessimistic explanatory style did not contribute to a lack of persistence (Drucker, Drucker, Litto, & Stevens, 1998; Dweck, 1986) or impaired performance (Witkowski & Stiensmeier-Pelster, 1998), which has been evident in the investigation of learned helplessness. Overall, learned helplessness was not induced for pessimistic individuals who received non-contingent negative

outcomes. Despite differences in levels and strength of self-efficacy, performance did not vary as a function of explanatory style. These findings are not consistent with theory and previous research (Abramson et al., 1978), but are consistent with earlier research by Gill and Solmon (2004).

Limitations

Several limitations are inherent in this study design and must be acknowledged. First, although they are widely used and validated with this population, the reliability coefficients for the surveys for some subscales were only marginally acceptable. Relying on self-report data has some inherent limitations, but when validated instruments are used and administered with care, they should provide reliable data. Second, a convenience sample was used and was not necessarily representative of the female population on campus. Third, a large number of psychology students participated and may have biased the sample. The surveys administered throughout the study measured familiar topics taught in psychology courses, such as explanatory style, self-efficacy, and causal attributions. Another limitation is that the data were collected in one session, and the treatment, although consistent with what has been administered in earlier work, was limited to feedback on a single trial. Although the results are informative, it is possible that a treatment extended over multiple trials and/or days would have yielded results that provided stronger support for the research hypotheses. Finally, the difficulty of the tasks chosen may have contributed to a lack of persistence or impaired performance to protect self-esteem for all participants. Andrews & Dubus (1978) noted that perceptions of ability and task difficulty were important in one's assessment of success or failure. When skill level is also factored (Nicholls, 1984), individuals assess actual capabilities, accordingly. Tasks that were more recognizable to students would be useful to relieve any possible anxiety.

Conclusions and Implications

Taken together, the results of this study provide insight into how perceptions of controllability can influence the cognition and motivation of college-aged women as they approach physical tasks. There was some evidence that non-contingent feedback can produce a maladaptive pattern of attributions, in that women in the non-contingent positive feedback condition had more external attributions for success than those who received contingent or negative feedback. Non-contingent negative feedback was associated with both decreased self-efficacy and less effort, as reflected by poorer performance, on a subsequent task.

One unique contribution of this study was the inclusion of the effect of non-contingent positive feedback. Although strength and level of self-efficacy on a subsequent task were positively affected by positive feedback, a decrement in performance, which on this task infers a lack of effort, was evident. This was not expected, but demonstrates the importance of providing feedback that is contingent on performance, rather than simply providing positive feedback.

This study also represents an initial effort to investigate the interaction of explanatory style with controllability. Although there was no interaction evident, and there was not a linear relationship between explanatory style and self-efficacy, the results provide evidence that optimistic individuals do tend to be more efficacious than pessimistic individuals. Based on these results, several implications are supported for the encouragement of female college students' engagement in physical activity and for future study.

Implications for Practitioners. One clear implication that is supported by this study is the importance of providing feedback that is contingent on performance. Dweck (1986) has consistently argued that simply providing successful experiences for individuals, particularly

females, is not sufficient to foster a positive attributional pattern than will lead to increased effort. These findings demonstrate that feedback that is not linked to effort and performance, whether it is positive or negative, can lead to decreased effort. While it is clear that individuals who believe they have been successful will have higher levels of efficacy, it is also evident that higher efficacy will not necessarily lead to increased effort. Participants may have viewed the positive feedback provided as erroneous and uncontrollable. Consequently, they did not feel responsible for their actions (Gernigon, Fleurance, & Reine, 2000) and ultimately, their success. If successful experiences are to foster higher levels of efficacy that foster persistence and effort, that success must be linked to actual performance. Telling students that they did well, when their actual performance was not good, does not appear to be a strategy that will foster engagement.

A second implication for practitioners to consider is that providing positive feedback can foster higher self-efficacy. Although positive feedback that is erroneous does not appear to have substantial benefit, this finding does support the notion that it is important to structure tasks on which, with effort and persistence, individuals can experience a level of success. When positive feedback is linked to actual performance that was effortful, then it should have the potential to strengthen self-efficacy in ways that will increase effort and engagement. Comfort level is valuable as exercise participation notably declines as college students progress through their respective fields of study (Dishman & Dunn, 1998). Adults confer on positive and/or negative exercise experiences which influence effort, cognition, and persistence in exercise (McAuley, 1991). Helping students to identify activities in which they can experience success or allowing them to choose preferred activities in which they are willing to exert effort could decrease resistance to exercise or prevent the development of maladaptive patterns of behavior.

The final implication evident for practitioners is the importance of considering the threat of experiences in physical activities on self-esteem. Self-esteem, one's self-evaluation that assesses the degree of satisfaction or dissatisfaction with the self (Chandler, Lee, & Pengilly, 1997), is an important factor in one's decision about whether or not to engage in an activity. Performance of physical activities is by nature public, and errors and/or failures are readily apparent to peers. Attributional egotism, a pattern where individuals withdraw effort in order to protect self-esteem, could occur if individuals sense potential failure (Frankel & Snyder, 1978), and they may construct rationales to avoid the perception of low ability. Strategies are developed to excuse failure (Anderson & Jennings, 1980) and information is manipulated (Snyder, Higgins, & Stucky, 1983) to protect self-esteem. Individuals may attribute failure to lack of effort instead of a lack of ability in order to justify failure (Witowski, 1997) on a subsequent task. Structuring class environments so that threats to self-esteem are eliminated should decrease the likelihood that individuals will choose to employ strategies such as withdrawing from an activity to preserve self-esteem. One way to accomplish this is to focus on improvement and mastery of tasks, rather than on normative information.

Directions for Future Research

The results of this study provide insight into how positive and negative non-contingent feedback affect causal attributions, self-efficacy, and performance. They also provide a basis for additional investigation that can provide a clearer understanding of how perceptions of controllability affect engagement in physical activity. This was an initial attempt to account for explanatory styles in the investigation of controllability. Specifically, the effect of explanatory style on self-efficacy, causal attributions, and performance, and how controllability interacts with

explanatory style were investigated. Results were not consistent with the hypotheses, but it was acknowledged that the experimental design may not have been of sufficient rigor to effectively test those hypotheses. The design of experimental studies that investigate the interaction between controllability and explanatory style should take this into account, and perhaps select tasks that include multiple trials, rather than relying on tasks that consist of a single trial.

This study also represents an initial effort to study the effects of non-contingent feedback that is positive, rather than negative. Non-contingent positive outcomes on an initial task appeared to produce decreased effort on a subsequent task, which was not consistent with theoretical predictions. Additional research on the effect of positive feedback on self-efficacy and performance is warranted to more clearly understand the mechanism whereby higher levels of efficacy were associated with a performance decrement that reflects a lack of effort.

Qualitative methods could also provide additional insight into how controllability affects causal attributions. Employing methodologies that allow participants to provide open-ended explanations concerning their successes and failures would help researchers and practitioners gain a clearer understanding of the meanings that individuals attach to the feedback they receive, and how the participants' perceptions affect their levels of efficacy and their intention to engage and exert effort in a physical activity. Analyzing self-reported reasons for performance could facilitate the understanding of cognition associated with performance, motivation and persistence.

It is important for researchers to continue to explore how controllability and explanatory styles affect individuals' causal attributions, efficacy, and performance in physical activities. Learning more about how individuals effectively deal with failure when they encounter difficulty,

as well as how different types of feedback are interpreted by individuals, can inform research and practitioners about strategies that can be used to foster adaptive attributional patterns that will lead to increased self-efficacy and persistence. Testing these strategies in a design that incorporates an intervention over time represents an important step in this line of research.

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APPENDIX A: EXTENDED REVIEW OF LITERATURE

Influence of Learned Helplessness on College Women's Physical Activity Choices and Participation Levels

The benefits of maintaining a healthy, active lifestyle across the life span are well-documented. Engaging in recommended levels of physical activity has been associated with reduced risk for cardiovascular disease, diabetes, and certain types of cancers. Physical activity has also been associated with improved mental health, and individuals who are physically active across the life span report a higher quality of life. Despite these benefits, major segments of the population do not engage in regular physical activity, and consequently increase their risk for health-related problems associated with obesity and physical inactivity. Evidence indicates that decreases in physical activity increase the prevalence of and death from disease and obesity (United States Department of Health and Human Services, [USDHHS], 1996).

Activity levels decline between adolescence and adulthood, as Bray and Born (2004) documented a growing trend of decreasing physical activity between high school and college. A decline in exercise during the first months of college may also lead to a pattern of inactivity for the remaining college years, and this pattern may continue throughout adult life (Dishman, & Dunn, 1988). Thus, it is important to investigate why this decline occurs and how interventions can be designed that will facilitate the adoption of an active lifestyle during the college years.

The transition into college may prove to be especially problematic for many young females, and they may not maintain sufficient activity levels for various reasons. The activity levels of college females are lower than their male counterparts (Buckworth & Nigg, 2004), and males continue to demonstrate more active lifestyles during the adult years. If engaging in physical activity is not deemed important during college, it is unlikely that women will pursue

active life styles in later life. When individuals do not make the choice to actively pursue life-long fitness, this decision is likely to perpetuate through the years despite recommendations for moderate daily physical activity for all (Morrow, Krzewinski-Malone, Jackson, Bungum, & Fitzgerald, 2004).

Understanding the choices that individuals make regarding their physical activity behavior involves investigating a very complex set of variables. Motivation is defined as the “dispositions, social variables, and/or cognitions that come into play when a person undertakes a task at which he or she is evaluated, or enters into competition with others, or attempts to attain some standard of excellence” (Roberts, 2001, p. 6). Motivation is a cognitive process that plays a critical role in any decision making process involving volitional behavior, such as choosing to exercise. According to Roberts (2001), at least 32 clearly distinguished theories of motivation have been identified, so there are a wide variety of frameworks from which to choose in the investigation of motivation to be physically active. One key component across many of those theories is the causal attributions that individuals make concerning their successes and failures. Roberts (1992) argues that attribution theory, in actuality, is not a theory in and of itself, but rather that it constitutes a basic component of almost any complete theory of motivation. Our beliefs concerning why we either succeeded or failed in a specific endeavor have the potential to impact the decisions that we make concerning subsequent attempts.

Understanding causal attributions that influence females’ choices regarding activity or lack of it is an important area of study in the effort to overcome negative behaviors and promote life-long fitness (Huang, Harris, Lee, Nazir, Born, & Kaur, 2003). Attribution theory provides insight into the beliefs about the causes of achievements or failures, along with the underlying

motivation for future attempts. One aspect of attribution theory that is especially relevant in understanding females' activity choices is a pattern of learned helplessness (LeUnes, Nation, & Turley, 1980). When an individual believes that failure is attributed to lack of ability, (i.e., no matter how hard they try, they cannot be successful at a task because they lack the ability), they are unlikely to exert effort. This attributional pattern has been demonstrated to be detrimental to females in academic settings (Dweck, 1986), and in some physical education classes (Martinek & Griffith, 1994), but the role of learned helplessness in college women's physical activity choices has been largely unexplored.

Many factors contribute to the development of learned helplessness, and it is clear that everyone who experiences negative outcomes does not develop a pattern of learned helplessness. An understanding of attributional patterns and how they either foster or discourage engagement in physical activity has the potential to provide valuable information concerning how to facilitate long term involvement in physical activity. The purpose of this literature review is to organize and synthesize the research on attributions for engaging in physical activity, with a specific focus on the effect that learned helplessness has on physical activity choices of college women. The first section provides an explanation of attribution theory, what is known regarding causal attributions, and how attributions affect choices. In the second section, specific attributions of learned helplessness are explored and relevant research is reviewed. Attributional egotism as an alternative theory to learned helplessness is presented in the third section. Next, the role of self-efficacy in attribution theory and the contrasts and similarities of both learned helplessness and attributional egotism are addressed. The review concludes with implications for future research regarding learned helplessness in female college students and their physical activity choices.

Attribution Theory

Individuals' explanations for the causes of their successes and failures may not be based upon the actual causes, but rather the individuals' beliefs about why they succeeded or failed at a task. Although there are many possible explanations for performance outcomes, the four dominant categories that have been outlined by Weiner (1979, 1985) are effort, ability, task difficulty, and luck. The attributions that individuals make regarding performance outcomes have a powerful effect on decisions to either withdraw from an activity or continue (Bandura, 1977; Nicholls, 1984; Walling & Martinek, 1995; Weiner, 1979; Witowski & Stiensmeier-Pelster, 1998).

Early work focused on the locus of control (Rotter, 1966) characterized along a continuum between internal and external. Ability and effort are characterized as internal, while task difficulty and luck are external attributions. When success is attributed to internal causes, such as high ability and/or effort, that represents a positive attributional pattern. When an individual experiences success in an activity, and attributes that success to either high ability (e.g. I have natural ability at this activity) or high effort (e.g. I tried hard and my effort paid off), then it is likely that the individual will continue in the activity. Conversely, when individuals experience failure and make attributions to an external cause, such as luck (e.g. I was lucky, but if I try again, I might be more successful), then they are more likely to continue. Individuals who perceive lack of control are at-risk for maladaptive behaviors including a lack of resiliency when faced with difficulties (Martin, 2002) and performance deficits (Firmin, Hwang, Copella, & Clark, 2004).

The second dimension of attributions varies on a continuum of stability (Weiner, Frieze, Kukla, Reed, Rest, & Rosenbaum, 1971). Causes are not only characterized as internal or

external, but they are also delineated on a continuum from stable to unstable. Ability is characterized as an internal, stable attribution. Effort is internal, but not stable, in that individuals are free to exert varying levels of effort on tasks. Task difficulty is external and stable, as long as the task does not change, while luck is external and unstable. The stability of an event thus produces expectations for future success and failure. The more stable an event is perceived, the less change is expected in an individual's performance. However, if the causes influencing performance are subject to change, performance on future attempts is less predictable and intermittent in nature (Abramson, Seligman, & Teasdale, 1978).

By considering the stability dimension, more definitive predictions can be made about how varying attributions will affect future behavior. As this work progressed, however, Weiner (1979) further delineated the locus of control dimension by introducing the locus of causality. Causes are characterized as either controllable or uncontrollable (locus of control) and internal or external (locus of causality). Effort is an internal, unstable, and controllable attribution. Ability is also internal, but is stable and uncontrollable. Task difficulty is stable, external, and uncontrollable, while luck is external, unstable, and uncontrollable. A relationship between intention and control was revealed that provided insight; individuals seek to accomplish tasks deemed controllable, but can only control what they intend to accomplish (Weiner, 1985).

When considering these three dimensions, the possible consequences of attributional patterns becomes clearer. Attributing failure to lack of effort, an internal, unstable, and controllable cause is an adaptive motivational pattern, because effort can be increased on subsequent attempts. Attributing failure to lack of ability, however, represents a maladaptive pattern, in that ability is viewed as stable and uncontrollable. If an individual lacks ability to be successful, and ability cannot be changed, then success on future attempts is unlikely.

Attributing failure to luck, an external, uncontrollable, but unstable cause is a more adaptive attribution. Luck can change, so future attempts may be futile.

Globality has also been introduced as a construct that should be considered in attribution theory (Abramson et al., 1978; Weiner, 1979; 1985). Under some conditions, attributions are specific to a domain, meaning individuals may perceive failure in isolated events (e.g. kickball). In other conditions, attributions are generalized across events (e.g. all physical education activities) affecting performance in a variety of settings. An individual's response to outcomes also affects the perception of transfer across situations (e.g. I am not smart enough vs. the tasks are too difficult to perform, here). Regardless of consequences, it is difficult to distinguish who will initially generalize attributions and under which circumstances those attributions will arise.

Attribution theory (Weiner, 1979, 1985) provides explanations of how causal attributions influence one's performances, expectancies, and emotions (affect). These attributions are based upon the successes or failures of previous achievement tasks (Chandler, Lee, & Pangilly, 1997; Hagan & Medway, 1989; McAuley, Duncan, & Russell, 1992). Based upon one's cognitions and performance outcomes, changes in affect occur, either positively or negatively, to either avoid failure, continue success (Chandler, Lee, & Pangilly, 1997; Forsythe & McMillan, 1981; Hagan & Medway, 1989; McAuley, 1991; Weiner, 1985), or protect self-esteem (Rudisill, 1989; Weiner, 1985).

Understanding attribution patterns provides the basis for understanding maladaptive behaviors that are associated with negative attributional patterns. Learned helplessness is a framework to understand a pattern of negative attributions, and that is a focus of the next section.

Learned Helplessness as a Framework

Learned helplessness (Seligman, 1975) is described as an acquired condition that occurs

when an individual believes that his or her actions have no effect on the desired outcome (Dweck, 1986). More simply stated, an individual who is learned helpless believes that, no matter how hard he/she tries, he/she will not be able to achieve a successful outcome. The concept of contingency has emerged as a focal issue with regard to learned helplessness, in that learned helplessness reflects the belief that outcomes are not contingent on controllable factors. When outcomes are viewed as non-contingent (e.g. an individual's actions have no affect on the outcome), that increases the likelihood that learned helplessness will develop. The attributional dimensions of locus of control, locus of causality, and stability are all important considerations in learned helplessness (Abramson et al., 1978; McKean, 1994; Seligman, 1990). Additionally, globality is also a concern, in that a global pattern of learned helpless attributions has far reaching implications for individual behavior.

When outcomes are perceived to be non-contingent, an individual's expectation for success falls short. Motivational deficits (Martinek, 1996) and performance deficits (Diener & Dweck, 1978; Dweck & Reppucci, 1973; Dweck, 1975; Hiroto & Seligman, 1975; Seligman, 1975; Singhal & Kanungo, 1996) manifest as a result of cognitive mediators (e.g. perceptions and expectations of uncontrollability) and one's causal attributions (Abramson et al., 1978; Gernigon & Fleurance, 1998). These mediators influence methods (Mikulincer, 1994) used to avoid demonstrating low ability on tasks. The actions taken affect the perception of future performance and undermine motivation in the process. Generalization of these performance deficits may be seen if the individual perceives similarities between a current situation and prior experiences (Hiroto & Seligman, 1975; Miller & Norman, 1979). Consequences are then based upon causal attributions relating to the initial uncontrollable event (Campbell & Martinko, 1998; Lefcourt, Von Baeyer, Ware, & Cox, 1979; Peterson, Maier, & Seligman, 1993; Singhal & Kanungo, 1996).

This lack of personal efficacy demonstrated through maladaptive behaviors is associated with a pattern of learned helplessness. Learned helplessness, an inability to escape negative situations (Hiroto & Seligman, 1975), is characterized by four categories of consequences: task avoidance, lack of persistence or withdrawal, impaired performance, and lowered perceptions of ability.

Task Avoidance

Task avoidance, based on one's anticipation of an unsuccessful performance, results in a lower level of achievement. The tendency to avoid challenging tasks may lead to skill deficits when an individual displays maladaptive behaviors (Dweck, 1986). Choosing easier tasks where success is assured masks one's inability to perform comparatively with either the self or others (Bandura, 1977). Attributions (e.g. I did not want to do that task because I do not like that activity) thus allow an individual the ability to manipulate excuses explaining failure. An easier task which demands less effort (internal and uncontrollable) becomes a rational choice to maintain pride and protect self-esteem (Nicholls, 1984; Seligman, 1992).

Another aspect of task avoidance also includes procrastination (Cemalcilar, Canbeyli, & Sunar, 2003; Schubert-Walker & Stewart, 2000). Procrastination, the delay of acting upon or completing a task, allows an individual time to either regroup and find positive methods for dealing with problem situations. It can also allow an individual to withdraw, and to not consider the task at hand. The possibility of demonstrating low ability (internal and stable) is marked by the avoidance of performance failure.

Lack of Persistence

A lack of persistence or withdrawal of effort on tasks can be seen (Abramson et al., 1978;

Bandura, 1977; Dweck & Reppucci, 1973) especially when an individual experiences difficulty (Drucker, Drucker, Litto, & Stevens, 1998; Dweck, 1986). The individual withdraws effort on subsequent attempts and can therefore attribute failure to the decreased effort exhibited during the event. This lack of effort generates negative responses (e.g. I did not try very hard because I was tired., or Why continue if I will only fail?) as one assumes personal responsibility for the poor performance. However, the individual does not suffer from lowered self-esteem (Perry, Hechter, Menec, & Weinberg, 1993) as effort is internal and controllable. The individual is less likely to generalize failure across tasks if effort can be increased on another task. Controllability of the situation, through lack of persistence, influences outcomes and precedes motivational deficits on future tasks (Gernigon, Fleurance, & Reine, 2000) .

Impaired Performance

Uncontrollability remains a shared characteristic as it has been found to also disrupt task performance (Villanova & Peterson, 1991). Motivation contributes to interest and enjoyment and thus drives one's desire to learn, work hard, and achieve his/her highest potential (Martin, 2002). Prolonged failures, attributed to lack of ability, however, result in the acceptance of failure as an unavoidable consequence. Uncontrollability, due to one's lack of ability (internal and stable), thus undermines motivation. The withdrawal of effort associated with decreased interest and enjoyment produces a deterioration in task performance, perhaps in an effort to protect one's self-esteem (Witkowski & Stiensmeier-Pelster, 1998). Counter productive behaviors are utilized which compromise motivation on future tasks (Martin, 2002). Repeated failure (Cohen, Rothbart, & Phillips, 1976; Diener & Dweck, 1978; Hiroto & Seligman, 1975; & Mikulincer, 1986) is associated with avoidance, lack of persistence or withdrawal of effort, impaired performance, and perceptions of low ability.

These deficits enable an individual to justify and accept failure. One may have a full understanding of his/her incompetency, but will eventually adopt a false perception based upon those non-contingent outcomes. Generalization of divergent events is possible (Cohen, Rothbart, & Phillips, 1976; Hiroto & Seligman, 1975) although most participants reported specific attributions (e.g. the task was too hard) regarding the original failed task in a study by Abramson et al. (1978). In a subsequent study, those who made specific attributions regarding failure on an initial task performed better on a subsequent task than those who made global attributions. Specifically, when global attributions were made, uncontrollability was expected on subsequent tasks (Mikulincer, 1986, 1989a).

Perceptions of Ability

Impaired performance, task avoidance, and lack of persistence or withdrawal are factors that are intertwined with an individual's perception of his/her ability. Those factors are linked to non-contingent outcomes. When an individual believes that efforts are fruitless, coupled with a low perception of ability on the task, a pattern of learned helplessness results. Consistencies between past, present, and future performances are expected as low ability is either recognized or anticipated (Andrews & Debus, 1978; Walling & Martinek, 1995). Fredenburg, Lee, and Solmon (2001) define ability as "having the power, talent, or skill to do something" (p.233). Perception of stability becomes important as individuals display motivation or a lack of it on subsequent tasks. Failure blamed on the lack of ability (internal and stable) causes performance decrements and can be seen in children who display maladaptive behaviors despite having similar experiences in learning the task(s), successes during training, and feedback regarding performance (Diener & Dweck, 1978).

Perception of ability (internal and stable) and the difficulty of the task(s)(external and stable) (Andrews & Dubus, 1978; Nicholls & Miller, 1983) are important factors in the assessment of success or failure. This information is used to assess basic understanding and actual knowledge of the task along with one's level of skill (Nicholls, 1984) when referenced against the self or others. When ability and task difficulty are self-referenced, tasks are deemed more difficult dependent upon the anticipation of failure. Increased expectation of difficulty produces increased perception of success associated with high ability (Nicholls, 1984). Success on tasks that are assessed as low in difficulty does not reinforce positive perceptions of ability. When individuals believe that everyone can accomplish a task with ease, success on that task does not increase confidence or perception of ability. Personal learned helplessness, failure which is stable and constant for an individual, is directly affected when perceptions of actual performances do not produce expected outcomes. Verification comes in the form of social contact that reports failure or uncontrollability from peers (Singhal & Kanungo, 1996). Perceptions of failure on the task and/or uncontrollability of the situation are fostered when performance does not compare favorably with that of peers, or when feedback given by peers provides negative information concerning the level of ability (Singhal & Kanungo, 1996). When one's ability and task difficulty are judged according to others' performances and abilities, and are dependent upon the demands of the tasks, future expectations for success or failure are affected. A student's attribution orientation influences perceptions of ability, but remains dependent upon affect as referenced against the self or others.

Failure attributed to lack of ability thus places blame on the self. An individual who experiences uncontrollability and attributes failure to lack of ability (Walling & Martinek, 1995),

places the blame on the self and motivation on future tasks is decreased. Prolonged failures and/or maladaptive attributions increase one's susceptibility to learned helplessness. Ineffective strategies are adopted and essentially, the individual develops an attitude contributing to the lack of self-esteem, motivation, and persistence required for success.

Research Findings from a Learned Helplessness Perspective

There is a plethora of research in a wide variety of settings that has employed learned helplessness as a theoretical framework to investigate individuals' motivational choices. Early work originated in laboratories (e.g. inescapable shock conditions), and then as investigations evolved, it was apparent that clinical implications (e.g. depression), with regard to mental health issues, were associated with learned helplessness. Simultaneously, applications were made in academic classrooms (Dweck & Repucci, 1973) and physical education classes (Martinek & Johnson, 1979). As new avenues were explored, it became clear that learned helplessness is not a phenomenon that is limited to children, but rather is found consistently across the life span (McKean, 1994; Singhal & Kanungo, 1996). Learned helpless adults were not always learned helpless as children (McKean, 1994). Individuals can display characteristics at any point in life resultant upon continuous unsuccessful attempts. The important findings in each of these areas (academic, physical activity, and clinical settings for elementary through college aged individuals) are presented in the following subsections, with the literature relevant to age groups for children and adults delineated where appropriate. Given the volume of literature that has been generated relevant to learned helplessness, a thorough review of all areas is beyond the scope of this paper. Representative studies from the early work have been selected, but the major focus is on the more recent studies.

Our understanding of causal attributions and their respective dimensions has evolved through the years as researchers initially investigated the effects of learned helplessness on animals (Seligman & Maier, 1967), then within the academic classroom (Nicholls, 1978), the physical education classroom (Martinek & Griffith, 1994), exercise domains (Duda & Tappe, 1988), individuals suffering from depression (Seligman, 1975), and lastly, women battered by spouses (Walker & Browne, 1985). Research in academic and exercise (including physical education) settings initially focused on children, but later investigations considered the effects on adolescents and adults. The adult populations studied have been primarily in the college setting and these studies have provided helpful information regarding long-term implications as well as the development of learned helplessness during adulthood. Differences have been noted between children, adolescents, and adults as maturity provides higher-order thinking skills allowing for problem solving, albeit effective or ineffective strategies (Kistner, Ziegert, & Castro, 2001). Effective strategies enable individuals to solve/accomplish the designated task while ineffective strategies create conditions conducive to either learned helplessness or the protection of self-esteem.

Early work concentrated on animals and learned helplessness; dogs presented with inescapable shocks failed to avoid future shock encounters and thus demonstrated motivational, associative, and emotional deficits (Overmier & Seligman, 1967). The fear of aversive events elicited actions dependent upon non-contingent outcomes and the term “learned helplessness” emerged. Association of their actions to the shocks received was one of uncontrollability; regardless of the dogs’ actions, the aversive events occurred and uncontrollability led to withdrawal of effort needed to escape (Seligman & Maier, 1967). Cognitions of the dogs, which

led to learned helplessness, contributed to contingency learning. These initial studies provided a foundation for interests concentrating on humans and later, academia. Implications now reveal that cognitions associated with helplessness significantly affect feelings, motivations, and performances of students, within any domain (Singhal & Kanungo, 1996).

Initial research on humans demonstrated that similar behavior between animals and humans was present within learned helpless conditions (Hiroto, 1974). Individuals who were exposed to inescapable (non-contingent) noise were more likely to sit and endure the noise, without response, while the contingent and control groups escaped the noisy situations. Deficits produced on cognitive tasks were also documented (Hiroto & Seligman, 1975) and individuals confronted with non-contingent conditions reported frustration over the situation. Investigators thus concluded that learned helplessness was a trait which could be produced in humans.

Academic Settings

With the confirmation of learned helplessness in humans, investigations of this phenomenon emerged in academic settings. These studies extended from pre-school to college settings and found that individuals who had been capable, confident children did not necessarily become capable, confident adults (McKean, 1994). Adults with no previous reports of learned helplessness could exhibit the characteristic consequences associated with learned helplessness. Failure for adults also elicited changes in attributions regarding expectations on future tasks.

Studies that focused on learned helplessness in academic settings have generally employed one of two approaches. Experimental studies have been designed to investigate how non-contingent outcomes affect attributions for failure and success, as well as performance. Specifically, participants are tested in a laboratory setting, and tasks are contrived to manipulate the controllability of the outcome, and particular patterns of attributions are elicited (Perry &

Magnusson, 1989; Wigfield, 1988). Participants are asked to complete instruments to assess their perceptions of ability, levels of efficacy, and why they believe they were successful or unsuccessful on the task. Participants are then asked to engage in a second task that is similar to the first task in order to assess the effect of the experimental condition on performance (Dweck, 1975). Researchers have also employed instruments that assess existing levels of learned helplessness to identify individuals who exhibit those characteristics, and then have examined variables of interest with regard to their academic performance (LaForge & Cantrell, 2003; Valas, 2001).

The majority of research has been conducted in the elementary setting with limited research during the middle school years. Even fewer studies were conducted in secondary education settings, but a larger number in college settings were noted. The effects of impaired performance, task avoidance, lack of persistence, and withdrawal of effort were evident, regardless of age.

Young Children. Elementary students may demonstrate characteristics of learned helplessness, and when they do, motivation is affected. The differentiation between effort and ability is a central issue for children younger than twelve. Younger students are not able to distinguish between effort and ability, and believe that individuals who exert effort demonstrate high ability (Nicholls, 1978; Wigfield, 1988). Older children can distinguish between the two and realize that increased effort does not always reflect high ability on tasks. Skill levels vary across the ages, but older children can begin to attribute failure to decreased ability and notice discrepancies between themselves and others who have more ability. Social comparison causes either increased or decreased self-esteem (Valas, 2001) through successes or failures. Self-

efficacy based upon these outcomes influences motivation; younger children suffer when assessment of effort does not appear to be sufficient and their ability is lacking. Regardless of age or setting, all children display signs and symptoms conducive to learned helplessness when non-contingent outcomes are experienced (Dweck,1986). Adaptive and maladaptive behaviors are not biased and are even present in children with high ability. Although maladaptive behaviors may not be seen during adolescent years, the pattern may emerge in subsequent years.

Differences among children are evident at any age and especially with regard to maturity during the elementary years. Concepts of difficulty and ability (Nicholls & Miller, 1983; Wigfield, 1988) demonstrate the influence of maturity on achievement behavior and affect. Three levels of maturity, egocentric conception of difficulty (hard for me), objective difficulty (hard tasks demand more ability), and normative difficulty (social comparison as a foundation for level of difficulty) provide the basis to explain children's adaptive or maladaptive responses (Dweck & Reppucci, 1973). This maturation process occurs concurrently with the realization that personal responsibility is necessary to succeed on more difficult tasks. The belief that more difficult tasks receive higher recognition than easier tasks, as well as an association of personal difficulty in comparison with peer performances, must also accompany personal responsibility to foster mastery/adaptive behavior during the elementary years (Nicholls, 1978). Maturity differences among ages also contributed to poorer self-esteem and increased chances of depression (Kistner, Ziegert, & Castro, 2001) as the older students were capable of attributing failure to internal, stable, and uncontrollable factors (Valas, 2001).

Maladaptive behaviors were evident when children experienced a variety of situations. Perceived uncontrollability, task difficulty, and a lack of ability (Dweck, 1975; Nicholls, 1978;

Nicholls & Miller, 1984) proved debilitating when children matured and could distinguish between effort and ability. Social comparison (Dweck, 1975; Nicholls, 1978) within the classroom also evolved with maturity and was fostered by schools that encouraged normative evaluation and social comparison.

A challenging or confusing environment, especially for females (Dweck, 1986) contributed to decreased motivation despite children's previous achievements. Teacher assessments of a student's maladaptive behavior (Dweck, 1975; Kistner, Ziegert, & Castro, 2001; Nicholls, 1978; Valas, 2001) created a cyclic effect on the student; the teacher's assessments led to expectations. Children assessed as failures were expected to fail. Although teachers were more likely to identify males as learned helpless, females were more likely to report lower self-esteem and more depression thus leading to maladaptive tendencies (Valas, 2001). Dweck (1986) concluded that females were more likely than males to believe that intelligence was a fixed trait. Despite previous academic success, they were also more likely to avoid challenges and prefer familiar tasks on which they had already experienced success (Dweck, 1986).

When non-contingent outcomes were experienced, children exhibited either lack of persistence (Dweck & Reppucci, 1973), diminished perception of ability, impaired performance (Diener & Dweck, 1978), and/or task avoidance (Dweck, 1975; 1986). When children perceived their performance as a failure, they dwelled upon the unsuccessful outcome and did not attempt to employ alternative approaches to overcome the failure. Children did not envision success as a possibility in that condition, during that moment. Immediate and premature remedies were used to end the situation (Diener & Dweck, 1978; Dweck, 1986) as maladaptive patterns compromised the acquisition of cognitive skills and limited the use of learning strategies, when needed.

Dweck (1975) considered the effects of attributional retraining with the goal of improving performance. Children were taught to attribute failure to insufficient effort and were more likely to improve performances and demonstrate mastery on challenging tasks. Students who received direct attributional retraining (in comparison to either indirect or no retraining) reported the use of positive self-talk and actually enjoyed the treatment condition (Fowler & Peterson, 1981). Continued intellectual growth and persistence in the face of adversity, throughout the school experience (Dweck, 1986) contributed to positive alterations of student perceptions and participation, modified attributional patterns, and increased persistence (Fowler & Peterson, 1981). Proper training, time, and energy could potentially provide students with successful situations promoting skill improvement, self-esteem, self-efficacy, and a reversal of learned helplessness.

College Students. College students are faced with new experiences as they enter into a higher education setting. As with students of other ages, academic failure is a threat despite previous successes or failures in elementary, middle, and high school. New demands are placed on college students as most have emerged into adulthood and are struggling with autonomy. Personal crises and financial hardships, whether acute, episodic, or chronic, threaten students' controllability of their situations and ultimately lead to either positive or negative strategies for coping with difficulties (McKean, 1994; Perry & Magnusson, 1989). While first year students may struggle with achieving balance, older students may display a greater sense of control due to rank and experience (LaForge & Cantrell, 2003). Attributional retraining has proven to be effective with college students to combat maladaptive behaviors (Perry & Penner, 1990; Wilson & Linville, 1985) regardless of classification or situation.

Academic helplessness, learned helplessness in the classroom, affects college students in a manner (cognitive, affective, and behavioral effects) consistent with reports of maladaptive behaviors in children. Consequences of learned helplessness vary slightly for the older student and are manifested through personal and universal helplessness, anxiety, cognitive exhaustion, motivational deficits, and pessimism. Fostered by internal, stable, and uncontrollable attributions (McKean, 1994; Singhal & Kanungo, 1996), perceptions and attitudes influence the development of learned helplessness in the same manner as described for younger students. Attitudes, evaluations regarding the self and others, determine either positive or negative views regarding situational tasks, and influence individuals' motivation to persist on tasks. Learned helplessness studies that focused on college students have been experimental in nature (Perry & Magnusson, 1989; Perry & Penner, 1990; Wilson & Linville, 1985), with fewer studies that used instruments to identify characteristics associated with poor academic performance (LaForge & Cantrell, 2003; Singhal & Kanungo, 1996).

Personal experiences with non-contingent outcomes contribute to maladaptive patterns more so than simple awareness of non-contingency reported by peers. This personal helplessness is also likely to be accompanied by perceptions of universal helplessness, a belief that non-contingent outcomes were experienced by others (Singhal & Kanungo, 1996) for the same task. Universal helplessness masks the inability to accept failure through changes in perception regarding the difficulty of the task (e.g. everyone failed the exam, so it is not my fault for scoring a low grade). However, failure in solitude (as compared to peers) increases anticipation and anxiety regarding the outcome (Chartier & Friedlander, 1981), especially when fellow peers do not perceive the threat of failure (Yee, Pierce, Ptacek, & Modzelesky, 2003). Psychological

investment in the task becomes a variable of interest as college students do not wish to be viewed as incapable by peers.

Pessimism, the belief that negative events will last a long time, undermines participation in activities (Seligman, 1990) and ultimately affects motivation. Students' pessimistic explanatory styles have been linked to poor performance (e.g. low grade point averages) and maladaptive behaviors (e.g. passivity) in the classroom (LaForge & Cantrell, 2003; Martinez & Sewell, 2000; McKean, 1994; Seligman, 1990), especially for freshmen (Peterson & Barrett, 1987). However, LaForge and Cantrell (2003) found a positive correlation between pessimism and high grade point averages/course points. In an effort to explain this finding, it was suggested that older students could have been confronted with initial academic setbacks and were not affected negatively (Anderson & Deuser, 1991; LaForge & Cantrell, 2003); the academic setbacks helped individuals learn cognitive skills necessary for success (Seligman, 1990).

Anxiety, most commonly considered to be a cause of failure, has also been identified as a by-product of failure. Amichai-Hamburger, Mikulincer, & Zalts (2003) reported that failure induced anxiety contributed to off-task thoughts decreased an individual's capacity to formulate strategies needed to accomplish tasks. Cognitive exhaustion (Amichai-Hamburger, Mikulincer, & Zalts, 2003) distracted the individual from a true understanding of the task and attention was directed inwardly to compensate for low ability. Thus, minimal resources were employed and no improvement was demonstrated. It is of interest to note that this research was used by the United States Army during the Gulf War to convince learned helpless individuals of the benefits of positive actions (continued efforts, engagement of challenging tasks) needed to overcome their oppressors. Peripheral cues in the form of persuasive messages were used as a method of attributional retraining and were sufficient to encourage positive behaviors.

Differences between genders (Cemalcilar, Canbeyli, & Sunar, 2003; LeUnes, National, & Turley, 1980) were also found on the college level. The effects of personality traits on learned helplessness were assessed to determine their role on performance (Cemalcilar, Canbeyli, & Sunar, 2003). Males and females, with the same personality traits, reacted differently when learned helplessness was induced. Females who experienced induced learned helplessness performed worse than other females while their male counterparts did not demonstrate inferior performance from other males (Cemalcilar, Canbeyli, & Sunar, 2003; LeUnes, National, & Turley, 1980). Parental influence may provide the foundation that encourages and/or teaches controllability during frustrating childhood situations. Women may not have received reinforcement encouraging the inherent belief that they possess the ability to persist when faced with adverse events. Social standards typically require or expect more from men than they do for women, thus contributing to this phenomenon which stifles success.

Persuasive messages (Amichai-Hamburger, Mikulincer, & Zalts, 2003), expressive instruction (Perry & Magnusson, 1989; Perry & Penner, 1990), and one time training sessions (Wilson & Linville, 1985) are forms of attributional retraining that have been used with college students. Retraining studies in the collegiate setting have attempted to accomplish the goals of prevention or remediation of negative causal ascriptions hindering performance and impairing academic success. Each study that included a retraining component demonstrated success for the at-risk students as well as the successful students (Wilson & Linville, 1985). Students who received attributional retraining demonstrated a significant performance improvement as compared to those who received no training or limited training (Perry & Penner, 1990). Assistance with external attributions was possible (Perry & Magnusson, 1989), enhanced motivation and

achievement were reported immediately, and the potential to alleviate learned helpless symptoms in their future academic studies was evident (Wilson & Linville, 1985). However, it was noted that increased motivation will not improve achievement when students do not possess the necessary skills to succeed (Perry et al., 1993).

Physical Activity

Researchers in the field of kinesiology have used the learned helplessness framework to investigate adaptive and maladaptive achievement patterns on skill performance, and participation, or lack thereof, in physical exercise and physical education. As with academic settings, learned helplessness may develop during childhood or adolescence and continue through the teen years into adulthood. Effects of learned helplessness are evident during childhood as physical education students display this attributional pattern (Martinek & Griffith, 1994). Adults' physical exercise patterns also demonstrate a pattern of learned helplessness and maladaptive patterns including no exercise, limited activity, or lack of persistence (McAuley, 1991). Individuals suffer academically when learned helplessness appears in the classroom, but when self-esteem and self-efficacy are affected in physical activity, health is ultimately undermined and an unhealthy lifestyle evolves (Huang et al., 2003).

Physical Education. Although the majority of learned helplessness research has been conducted in the academic classroom settings, researchers in physical education have also investigated the role of learned helplessness. The learned helplessness framework seems especially applicable, given the public nature of the physical education classes where public demonstration of skills fosters social comparison. Studies conducted in physical education settings have tended to rely on qualitative approaches to investigate the effects of learned helplessness rather than to incorporate

experimental paradigms where conditions are manipulated. As with academics, task avoidance, lack of persistence, impaired performance, and altered perceptions of ability (Martinek, 1996; Martinek & Griffith, 1994; Portman, 1995; Walling & Martinek, 1995) are associated with a pattern of learned helplessness.

Differentiation of effort and ability, as in classrooms, is a critical element in physical education setting (Martinek & Griffith, 1994; Nicholls, 1978; Reynolds & Miller, 1989). Maturity necessary to distinguish between the two was reported as early as age seven or eight (Martinek, 1996). Based upon personal performances and social comparison, mediators of controllability (social comparison, teacher/coach expectations, and behaviors of others) contributed to explanations of behavior/performances, positive and negative experiences, expectations, beliefs, and perceptions regarding abilities and successes/failures. By the time students reach middle school, learned helpless students attribute failure to lack of ability (Martinek & Griffith, 1994; Portman, 1995; Walling & Martinek, 1995). However, learned helpless students in these studies agreed that physical education was not an environment for learning skills. Skill performance was attributed to luck, previous experience/ability, and practice while success in class was characterized as having fun and performing assigned tasks with ease. Often learned helpless students preferred not to receive assistance, instead masking poor skills and low competence by labeling new tasks as “boring” and withdrawing effort (Portman, 1995).

In these studies of learned helplessness, social comparison for all age groups was evident through simple observation and often through teacher assessment and expectancy. Students who were weaker in skill performance were often singled out and criticized by other students; interestingly, boys possessing low to medium skill levels were apt to instigate the criticism

(Portman, 1995). This teasing contributed to lowered self-esteem, self-efficacy, and to a belief that higher success on tasks was possible if peers would not criticize (especially during competitions) (Portman, 1995; Walling & Martinek, 1995). Teachers' assessments and expectations of students also proved detrimental as students for whom teachers held low expectations had more negative self-concepts and received less contact time, encouragement, and acceptance than students with higher expectations (Martinek & Johnson, 1979). The low-expectancy students, in turn, displayed immature or inappropriate strategies to accomplish the task thus leading to impaired performance, low persistence, and a lack of effort.

As with classroom research, a teacher's role in the prevention of learned helplessness is vital to combat negativity from classmates, as well as to counter the expectancy effect. Hopelessness for some children is often routine and reinforced by teachers. Social and economic status appear permanent and eventually students view performance deficits as unalterable. Despite the clear evidence that physical education classes typically foster learned helplessness for low skill students, classes can be structured to provide students with individualized activities that foster attainment of personal goals and improved skill levels. Ames (1984) found that social comparison, in the form of competitiveness, was detrimental to student performances on tasks. Fifth and sixth graders performed best in individual activities and did not display signs of helplessness. The prevention or the retraining of maladaptive patterns is possible as a structured physical education environment can provide specific feedback including directions to modify or reform ineffective strategies. When used in conjunction with goal-setting, an increase in self-perception and controllability can be noted. Individualized attention from teachers (Martinek & Hellison, 1997; Walling & Martinek, 1995) sometimes outside of class, can increase confidence and combat the effects of learned helplessness patterns on new tasks.

Sport/Skill. Researchers have also focused on how learned helplessness affects skill acquisition. A series of studies by Gernigon and his colleagues (Gernigon & Fleurance, 1998; Gernigon, Thill, & Fleurance, 1999; Gernigon, Fleurance, & Reine, 2000) investigated the effects of task difficulty and effort attributional comments on the alleviation of learned helplessness. They examined the effect of controllability by manipulating experimental conditions with regard to contingent and non-contingent outcomes. They found a correlation between self-worth and personal ability on tasks involving a high level of difficulty. Individuals were more motivated and had higher levels of perceived competence after successes on more challenging tasks. As with other situations, uncontrollability, failure, internal and stable attributions, and decreased self-efficacy fostered learned helplessness in the three studies.

The studies varied as Gernigon and Fleurance (1998) used two different tasks which required two motor programs (e.g. gun-shooting and hockey); gun-shooting in the pre-treatment phase and hockey in the training phase. Learned helplessness was not generalized to the subsequent task as the motor programs for each were specific and unrelated. Tasks not requiring the same motor program typically do not have a high learning transfer (Magill, 2001) and therefore the training condition did not affect test performance. Gernigon, Thill, and Fleurance (1999) and Gernigon, Fleurance, and Reine (2000) eliminated the training phase and studied the effects of learned helplessness on a perceptual motor task (gun-shooting). Gernigon, Thill, and Fleurance (1999) found that uncontrollable conditions did not negatively affect cognitive and behavioral variables as decreased self-efficacy and confidence were not exhibited. Gernigon, Fleurance, and Reine (2000) found that contrary to learned helplessness research, failure perceived as global was directly related to increased performances on subsequent tasks, which is not consistent with the earlier work of Abramson, Seligman, and Teasdale (1978).

Prapavessis and Carron (1988) evaluated maladaptive tendencies of elite tennis athletes. Despite their higher level of training and elite status in the competitive field, feelings of incompetency and uncontrollability emerged with the increased possibility of failure. As adaptive individuals progressed in competition, success was harder and harder to attain. The pursuit of favorable judgments or avoidance of negative judgements became a maladaptive behavior pattern. Later, those maladaptive behaviors led to performance decrements and thus created a failure situation for the athletes. Perception of ability was important, especially when considering social comparison against other elite athletes.

_____Exercise. Once individuals graduate from high school, they are rarely required to exercise in a structured environment. Beyond high school, individuals make their own decisions concerning exercise. As noted earlier, college students are less likely than high school students to engage in exercise and that trend continues across the lifespan. Studies of corporate exercise programs have found a positive correlation between increased body fat and decreased exercise adherence. Most individuals who start an exercise program do not continue beyond six months (Custer & Doty, 1992). Frequent exercisers report higher levels of efficacy and make more internal and personally controllable attributions (McAuley, 1991).

The lack of physical activity during adulthood does not necessarily evolve from learned helplessness developed after high school, as there are many factors that influence decisions about being active. Perceptions of ability regarding new tasks or activities at any age, however, may influence choices of or continuation of an activity, and learned helplessness could provide a framework to understand why some individuals cannot successfully initiate and sustain a regular exercise program. Adults draw from past experiences, either positive or negative, and these influence effort, thought processes, and persistence in exercise sessions (McAuley, 1991).

When individuals do not believe that their behavior, that is, engaging in physical activity, will produce positive health benefits, such as weight loss and improved physical function, then they are unlikely to persist in a program. Although learned helplessness has not been used as a framework for investigation in this area, in a study by Duda and Tappe (1988) middle-aged and elderly adults were not likely to be active unless they saw a direct relationship between their involvement in exercise and personal gain as well as recognition from others regarding their activity. This finding is consistent with a learned helplessness pattern and supports the assertion that this framework could prove to be useful in understanding physical activity choices, especially for women. Although there has been little investigation of adult learned helplessness in physical activity, the studies that have explored learned helplessness with regard to depression and battered women's syndrome lend further support for the applicability of this framework to study physical activity choices of adult women, and a brief overview of those findings is presented next.

Depression

Seligman and his colleagues (Miller & Seligman, 1973; 1975; 1976; Seligman, 1975) have examined the relationship between learned helplessness and depression. Depression and hopelessness became subset topics within the realm of learned helplessness as depression focused more on clinical aspects (Miller & Norman, 1981) of those diagnosed and hopelessness was found to foster helplessness. The reformulated theory of learned helplessness (Abramson et al., 1978) stated that the depressed affect was a consequence of non-contingent outcomes and stemmed from the stability dimension (Weiner, 1979). Reactive depression, caused by the stresses in life, led to individuals' beliefs that highly desired outcomes would not occur and/or highly aversive outcomes would occur thus contributing to feelings of hopelessness, helplessness, and depression

(Spendlove, Gavelek, & MacMurray, 1981; Valas, 2001). Depressed individuals often believe all actions are predestined for failure and thus display passivity, negative cognitive set, and depressed affect. Low self-esteem and heightened vulnerability to depression are likely to follow. Internal, stable, and global attributions may induce depression with the occurrence of negative stress in one's life (Peterson & Seligman, 1984; Spendlove, Gavelek, & MacMurray, 1981).

Although the reformulated theory of learned helplessness presented depression as a direct result of non-contingency outcomes, others contended that this was applicable only with clinical depression and not with depressive mood reactions (Stiensmeier-Pelster, 1989) or those who possess some sense of control (Stoltz & Galassi, 1989). Attributional style was found to be a cause rather than a consequence of depressed mood, as failure was associated with a deterioration in mood when attributions were internal, stable, and global. However, no effects in mood were evident after success. Upper level undergraduates who were depressed and had low self-esteem gave more internal attributions for negative events than those who were depressed, but had higher self-esteem (LaForge & Cantrell, 2003; Stoltz & Galassi, 1989). An aspect that contradicted the work of Abramson et al. (1978) was the fact that individuals could employ behavioral and affective consequences of action that were active, yet dysfunctional responses. When this was the case, cognitive explanatory styles were deficient and risks were taken to avoid negative moods (Peterson, Maier, & Seligman, 1993). Unintentional injury and trauma were linked to hopeless moods/explanatory styles and if identified early, preventive steps could be taken.

Attributional retraining proved helpful for dysfunctional responses and was also found to be beneficial for depressed individuals, as a whole. Those identified as clinically depressed reported positive changes including greater success and better performance, but caution was advised

regarding time and whether or not it was relevant to daily life (Miller & Norman, 1981).

Individuals not classified as clinically depressed can benefit with increased controllability of particular situations to prevent global helplessness (Spendlove, Gavelek, & MacMurray, 1981).

Studies conducted with depressed housewives revealed that increased social contact and involvement in outside activities was possibly sufficient inoculation to prevent a loss of personal identity stemming from dependence and a lack of intellectual stimulation.

Battered Women's Syndrome

Another venue within the learned helplessness research coincides with social learning theories of modeling and aggression to explain patterns of behavior associated with battered women's syndrome. These women did not report task avoidance, lack of persistence, impaired performance or altered perceptions of abilities, *per se*. However, decreased self-efficacy and a lack of controllability was experienced as victims endured physical, psychological, and sexual assault despite their preventive actions. Appraisals of the situations fostered acceptance and reactance to avoid further harm and possibly to survive (Walker & Browne, 1985). Maladaptive behaviors and helpless attributional styles were common among battered women (Palker-Corell & Marcus, 2004) and a relationship between partner abuse and learned helplessness has been established (Walker, 2000).

Despite the negative attention received from partners, battered women did not perceive their actions to be contingent upon positive lifestyles, free from abuse. Their choices to leave (and possibly to return to) the abusive relationships were dependent upon the women's efficacy, which positively correlated with coping strategies (Lerner & Kennedy, 2000). Women who had also left their abusive partners within the past six months were more likely to experience intense

psychological battles (within the self) and were more likely to return to their previous abusive situations than women who had separated from their partners for more than one year. Induced stress affected coping responses (affective, cognitive, and behavioral), dependence on the partner inhibited adaptive behaviors (Pape & Aries, 2000), and previous abuse, whether as a child or as an adult, encouraged helplessness. Children who experienced abusive childhoods were found to model behavior consistent along gender lines; females whose mothers had been abused accepted the behavior, possessed few self-protection skills, and accepted victimization (Walker & Browne, 1995). Personality, parental influence, and societal expectations can be detrimental to women as young females, typically, are taught to win the approval of others, to adapt to more dominant behaviors, and to maintain peace with those around them, intertwined with a pattern of learned helplessness.

Attributional Egotism

Not everyone who experiences failure displays a learned helplessness pattern of negative causal attributions leading to decreased performance and persistence, lowered motivation, task avoidance, and altered perceptions of abilities. Frankel and Snyder (1978) proposed attributional egotism, as an alternate theory to learned helplessness to provide another explanation of how individuals dealt with failure attributions. Like learned helplessness, attributional egotism provides a framework to explore the relationship between decreased effort and self-esteem. From this perspective, failure on subsequent tasks after initial failure is not attributed to uncontrollability, but instead rationales are constructed to avoid perception of a low level of ability and ultimately protect self-esteem (Snyder, Smoller, Strenta, & Frankel, 1981). Specifically, there is evidence that individuals make attributions relevant to self-esteem (Zuckerman, 1979), use strategies as an excuse for failure

(Anderson & Jennings, 1980), and manipulate information (Snyder, Higgins, & Stucky, 1983) to protect self-esteem. In support of this theory, subsequent studies also suggested that individuals with anxiety cognitively distanced themselves from the task at hand in an attempt to escape failure (Mikulincer, 1989a). Conversely, individuals have also been found to display reactance, a “renewed effort,” when academic setbacks are encountered. These individuals did not display characteristic maladaptive behaviors when failure was experienced during multiple attempts (McKean, 1994).

Based on egotism (Frankel & Snyder, 1978) and low effort (Birney, Burdick, & Teevan, 1969; Lazarus, Deese, & Osler, 1952), attributional egotism proposes that deficits in performance are not solely attributed to a lack of motivation, but reflected an attempt to protect self-esteem. Self-esteem is defined as one’s self-evaluation which assesses the degree of satisfaction or dissatisfaction with the self (Chandler, Lee, & Pengilly, 1997) and is an important factor in individual’s decisions about whether or not to engage in an activity. Attributional egotism (Snyder et al., 1981) is characterized by the denial of unpleasant results (based on personal responsibility) and the acceptance of good outcomes on a first task (self-handicapping). Specifically in a series of studies investigating this attributional pattern, when an initial task was characterized as unsolvable, but highly difficult, failure was anticipated on the second task. However, no threat to self-esteem was associated with failure when it was attributed to the individual’s lack of effort to justify failure on the subsequent task (Frankel & Snyder, 1978; Hagan & Medway, 1989; Peterson, Maier, & Seligman, 1993; Snyder et al., 1981; Witkowski, 1997). When the negative outcome was attributable to the self (Frankel & Snyder, 1978,) high task difficulty fostered the perception that self-esteem was not affected if others also experienced failure on the same task. Perceptions of

poor instruction (Perry & Magnusson, 1989) and possible embarrassment in public settings (Witowski & Stiensmeier-Pelster, 1998) also contributed to altered perceptions involving failure.

There are many avenues that individuals have used in attempts to avoid demonstration of low ability or the threat of failure. Attributional egotism was certainly an interest, while self-handicapping (Frankel & Snyder, 1978; Ryska, 2003), enhanced performance (Yee et al., 2003), denial of personal responsibility (Mikulincer, 1989b), the creation of a physical or psychological impairment (Smith, Snyder, & Handelsman, 1982), negativity (Mikulincer, 1989a) and a reduction of freedom (Fiske & Taylor, 1984) also provided individuals with external attributions regarding failure. External attributions relieved self-blame for failure and supported a false sense of control during the event(s) as failure was not perceived to be internal; protection of self-esteem was embedded in the form of an individual's perception of being helpless (Mikulincer, 1989b).

The use of strategies is another important element in alternatives to learned helplessness, but this mechanism does not rely on external attributions. In a study by Anderson and Jennings (1980), individuals who failed at a task and perceived their strategies to be ineffective, reacted positively, and adapted on future tasks. Continuous monitoring of the negative event allowed for refinement of actions. Predictions of failure on subsequent tasks after initial failure were higher for those who attributed failure to lack of ability. The individuals who perceived their initial strategies to be effective did not display maladaptive behaviors emphasizing inappropriate cues.

There is also evidence that information can be manipulated to protect self-esteem along the dimensions of consensus, distinctiveness, and consistency. Consensus is equivalent to personal/universal helplessness as individuals can gauge personal failure in comparison to that of others. Distinctiveness considers whether or not failure occurs in other situations (globality), while

consistency distinguishes how often failure occurred in other situations (stability). Individuals can rationalize personal failure through the belief that others also failed at the given task, so their (personal) failure should not generalize to other tasks (unstable and specific attributions) (Snyder, Higgins, & Stucky, 1983). Failure is then attributed to uncontrollable circumstances. A denial of responsibility can also follow when excuses cannot be made regarding failure (Mikulincer, 1989b).

In response to the alternative explanations, Peterson, Maier, and Seligman (1993) argued that “the egotism hypothesis may well explain what goes on inside or even outside the laboratory some of the time for some of the people, but we think it implausible that this is generally how people respond to uncontrollable events” (p. 130). Their inclination was that individuals presented with adversity would be better prepared to combat negative performance outcomes if protection of self-esteem was adequate. They asserted, however, that individuals presented with repeated negative outcomes are at risk for maladaptive behaviors and would likely not overcome the events as easily as predicted by egotism researchers. They concluded that the attributional egotism research had failed to demonstrate how cognitive impairment did not exist simultaneously with motivational deficits. Arguments for both sides provide implications for further research to compare, contrast, and relate the two theories to both academic and exercise domains for adults.

Role of Self-Efficacy

Regardless of distinctions noted between learned helplessness and attributional egotism, both theories are grounded in the social-cognitive framework (Bandura, 1986). Bandura’s (1977) work explored the idea that individuals assess capabilities, form opinions of performance based on previously experienced successes or failures, and pattern future attempts around this belief system. Self-efficacy, a belief that one can successfully achieve a certain outcome (Bandura, 1977),

provides a theoretical basis for understanding learned helplessness (George, Feltz, & Chase, 1992; Martin, 2002) and attributional egotism (Frankel & Snyder, 1978). Social observation and evaluation of others, things, and events influence one's personal actions, choices, effort expenditure, and perseverance on the various activities encountered (Martinek & Griffith, 1994; McAuley, 1991; Schunk, 1983; Travers, Elliot, & Kratochwill, 1993). Self-efficacy mediated attributions and affects (McAuley, 1991) are typically domain specific and increase motivation (McAuley, Pena, & Jerome, 2001) as ability can vary on new and differing tasks.

Perceptions of capabilities also influence subsequent achievement. Schunk (1983) found that children given ability-feedback reported higher self-efficacy on subsequent tasks. The attributional feedback given relayed social approval, and the validity and credibility of the feedback was equally important. For increased efficacy to be observed, however, tasks had to be viewed as average in difficulty, ability and effort feedback had to be combined as difficulty increased. Self-efficacy was not enhanced when feedback reported higher effort on easier tasks.

The effects of modeling on individuals' self-efficacy was found to be significant when similar models were provided (George, Feltz, & Chase, 1992). Models considered to be dissimilar (athletic vs. nonathletic; female vs. male) did not provide encouragement for a task and individuals thus reported lower self-efficacy. Individuals also had to perceive the task as moderately important for modeling effects on performance to be observed; proper incentives were required for self-efficacy to predict performance.

As discussed earlier, McAuley (1991) reported that efficacious individuals tended to exercise more frequently and gave more internal and stable attributions regarding their exercise programs. A vital component in exercise adherence, self-efficacy varies with the stages of

commitment (adoption, maintenance) (McAuley, Pena, and Jerome, 2001). Self-efficacy serves as the foundation for both learned helplessness and attributional egotism, providing a framework to understand how to foster attributional patterns that foster choices to be physically active.

Physical Activity Choices

There is a lack of research on the effects of learned helplessness among college students in the exercise domain. Current literature provides a knowledge base relevant to children and adolescents in physical activity, but little has been published regarding the effects of learned helplessness on the choices of adults (Yee et al., 2003). This is an area that has the potential to provide insight into understanding the activity choices of college females and possibly for the prevention of obesity and diseases (Bray & Born, 2004; Huang et al., 2003). Males and females who possess a greater sense of self-efficacy and internal locus of control place higher values on health and fitness, healthy lifestyles, and activities that assist in the maintenance or attainment of fitness (Wallace, Buckworth, & Kirby, 2000).

The transition from high school to college proves exciting, but challenging for many students. Although many students recognized and acknowledged the benefits of exercise on psychological (Bray & Born, 2004), and physical (Mack, 2003) health, few actually exercised three days per week as recommended by the American College of Sports Medicine (2000), with a high percentage of young adults classified as overweight and inactive (Huang et al., 2003). Bray and Born (2004) also reported that only 11% of the college students in their study became active once leaving high school while a third became inactive when they arrived at college. It is interesting to note that students who were once active decreased activity levels regardless of the benefits associated with an active life style (Petosa & Suminski, 2003). Minority students were less likely

to engage in physical activity with Hispanics posing the greatest risk for inactivity (Suminski, Petosa, Utter, & Zhang, 2002; Suminski & Petosa, 2002). Age of students was an added concern; physical activity decreased as students entered upper level courses (Buckworth & Niggs, 2004; Huang et al., 2003). Upper level students reported more time on computers than those classified as lower level students. The academic demands required during junior and senior courses to meet graduation standards are rigorous and often do not allow for extra-curricular activities.

Preventive programs should be of great interest to universities to protect students from poor psychological and physical health (Huang et al., 2003; Petosa & Suminski, 2003; Suminski et al., 2002; Suminski & Petosa, 2002). Outreach programs are recommended, but differences within ethnic backgrounds are evident. College presents an ideal time to prepare students for their futures and should include an emphasis on adopting healthy life styles. Students transition into adulthood and form ideals, goals, and perceptions based upon the information provided during college. Positive and negative experiences are joined with this new information to assist students with choices that will affect them for the remainder of their lives. Their choices in activity levels will represent values, perceived outcomes, and reinforcements (Bray & Born, 2004) that will establish lifestyle changes conducive to future expectations. Students who have had negative experiences in the physical activity domain during childhood or adolescence may be at risk for patterns of learned helplessness that will negatively affect their health in later life. They may acknowledge the benefit of physical activity, but perceive themselves to lack the ability to initiate and maintain an exercise program that will yield positive outcomes.

A study on middle-aged and older adults demonstrated that individuals who exercised reported personal incentives (increased motivational focus), greater sense of self, including sense

of competence, self-reliance, goal-directiveness, and social-identity, as well as more perceived options (Duda & Tappe, 1988). These individuals also expected future involvement in physical activity, reported internal challenge with exercise programs, and were in better health. A pattern of exercise established or reinforced during college should increase the likelihood that college students will become adults who value and engage in physical activity.

Implications for Future Research

Learned helplessness has been used as a framework to investigate maladaptive attributional patterns in academic settings across all educational levels, as well as school physical education classes. There is evidence that learned helplessness adversely affects achievement in a multitude of educational settings, and that this negative attributional pattern can persist across the lifespan. It is clear that females are generally at a higher risk to display learned helplessness than males. There is further evidence found with regard to depression and battered women's syndrome that women continue to be at risk to exhibit learned helplessness attributional patterns as adults.

Little is known, however, about how learned helplessness may affect physical activity behaviors, but this perspective appears to have the potential to provide a framework to understand why some women do not choose to adopt and maintain an active lifestyle. A specific example demonstrates how this might occur. Evidence has been presented that college age women are not as active as they should be, and it is also clear that many female college students are overweight. If a woman begins an exercise program with the goal of losing weight, and her initial efforts do not yield positive results, then she may perceive the outcomes associated with her efforts as non-contingent, meaning that her efforts did not produce the desired result. She could then be at risk to develop learned helplessness, because of the perception that, no matter how much she exercises,

that she cannot lose weight. If she cannot effect the desired outcome, then why should she engage in physical activity?

The first step in this line of inquiry is to determine if learned helplessness is an influential factor when women do not engage in physical activity. That is, for women who choose to be sedentary, does the perception of controllability play an important role in their decisions? An initial study should test the hypothesis that noncontingent outcomes in an exercise setting produce a pattern of learned helplessness with regard to decisions to engage in subsequent tasks, and their intentions to engage in physical activity. Then, it would be important to construct studies to test the hypothesis that, when outcomes relevant to physical activity are perceived to be noncontingent and individuals withdraw effort, that attributional retraining can be used effectively to facilitate persistence in the face of failure. The next step would be to identify individuals who display a learned helpless pattern with regard to their exercise behaviors and to investigate ways to intervene and remediate that pattern.

Summary and Conclusions

Individuals who experience repeated negative events react differently when presented with similar situations. Motivation, confidence, self-esteem, and self-efficacy are vital components in the decision to recognize and meet those challenges and demands. Individuals' attributions regarding performance outcomes are crucial as perceptions based upon control, causality, stability, and the global nature of the event influence behaviors. It is clear from the research based evidence that when a pattern of learned helplessness emerges, maladaptive behaviors (lack of persistence, task avoidance, withdrawal of effort, and impaired performance) occur. These maladaptive behaviors reflect decreased motivation as the individual does not anticipate success, regardless of effort or ability.

This pattern of maladaptive behaviors, however, does not always occur. Attributional egotism, a means to protect one's self-esteem, has also been documented when individuals are faced with failure, but do not attribute failure to uncontrollability. Attributions regarding performance are relevant to the self (external and controllable) but allow for deflection of personal blame through denial, avoidance of low ability situations, reduced freedom, and physical/psychological impairment. Globality is not necessarily an issue as failure often enhances performance on the next attempt as well as subsequent tasks.

College students, especially first year females, may not have a clear understanding of the relationship between their efforts and performance outcomes (Yee et al., 2003). Attributional styles and performances may vary according to experiences during the college years and affect motivation, self-efficacy, and reaction to new events. Students with maladaptive coping skills are not well-equipped to evaluate their actions leading to unhealthy lifestyles. Helping students who are at risk to identify activities in which they can experience success, to link effort with positive outcomes, and allowing them to choose preferred activities (courses and activities within courses) has the potential to decrease resistance to exercise, increase interest in healthy lifestyles, and increase exercise adherence through increased efficacy. It is important for researchers to continue to explore how individuals effectively deal with failure experiences so that they do not result in decreased motivation and maladaptive behaviors.

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APPENDIX B: INSTRUMENTATION

Physical Activity Readiness Questionnaire (PAR-Q)

For most people, physical activity should not pose any problem or hazard. This questionnaire has been designed to identify the small number of adults for whom physical activity might be inappropriate or those who should have medical advice concerning the suitable type of activity.

- | | | |
|--|-----|----|
| 1. Has your doctor ever said you have heart trouble? | Yes | No |
| 2. Do you frequently suffer from chest pains? | Yes | No |
| 3. Do you often feel faint or have spells of severe dizziness? | Yes | No |
| 4. Has a doctor ever said your blood pressure was too high | Yes | No |
| 5. Has a doctor ever told you that you have a bone or joint problem such as arthritis that has been aggravated by, or might be made worse with exercise? | Yes | No |
| 6. Is there any other good physical reason why you should not follow an activity program even if you want to? | Yes | No |
| 7. Are you 65 and not accustomed to vigorous exercise? | Yes | No |

If you answer “yes” to any question, vigorous exercise or exercise testing should be postponed. Medical clearance may be necessary.

I have read this questionnaire, I understand it does not provide a medical assessment in lieu of a physical examination by a physician.

Participant's
signature _____ Date _____

Investigator's
signature _____ Date _____

Adapted from PAR-Q Validation Report, British Columbia Department of Health, June, 1975.

Reference:

Hafen, B. Q. & Hoeger, W. W. K. (1994). Wellness: Guidelines for a Healthy Lifestyle. Morton Publishing Co: Englewood, CO.

Health History Survey

****Please complete thoroughly and honestly****

1. What is your classification?

Freshman Sophomore Junior Senior

2. What is your age category?

18-27 28-37 38-47 48-57 58 & over

3. What is your gender?

Male Female

4. Are you currently under the care and/or supervision of a physician?

Yes No

If yes, please explain the nature of injury/illness: _____

5. Do you (or anyone in your immediate family) suffer from:

- Hypertension Self Family

- Diabetes Self Family

- Dizziness Self Family

- Fainting Self Family

- Musculoskeletal injuries Self Family

If yes, please explain the nature of injury/illness: _____

Health History Survey (continued)

6. What does your current exercise routine consists of:

Aerobic Training

Strength Training

_____ 0 days

_____ 0 days

_____ 1-2 days per week

_____ 1-2 days per week

_____ 3-4 days per week

_____ 3-4 days per week

_____ 5-7 days per week

_____ 5-7 days per week

7. Are you currently enrolled in a kinesiology activity course?

_____ Yes

_____ No

Consent Form

1. Study Title: The Influence of Controllability on College Women's Efficacy and Attributions in Physical Activity
2. Performance Site: Louisiana State University at Alexandria
3. Investigator: The investigator listed below is available to answer questions about the research, M-F, 8:00am - 2:30pm.
Julie Franks Gill: (318)427-4456
4. Purpose of the Study: Your participation in this project will be used for research purposes. The main goal of this study will be to evaluate your ability to perform the hand grip task and the wall-squat task.
5. Subjects:
 - A. Inclusion Criteria: Individuals, ages 18 - 40, who are presently enrolled in undergraduate courses.
 - B. Exclusion Criteria: Subjects who have previous musculoskeletal injuries that might be aggravated during participation of the wall squat, are under the care of a physician, have been advised by a physician to refrain from exercise, or are collegiate athletes.
 - C. Number: 150
6. Study Procedures: Individuals will be asked to participate in one (1) session on a prearranged day to complete the study. Each subject will use her body to demonstrate her skills for these activities. The hand grip task will consist of holding a hand grip dynamometer and squeezing with each hand. The wall squat will consist of sitting against the wall, without the use of a chair. Participants will be asked to donate approximately 30 to 40 minutes of her time to complete the task.
7. Benefits: There are no direct benefits to the subjects.
8. Risks/Discomforts: There are possible risks or discomforts associated with this study as it is a form of physical exercise. This exercise requires maximum effort and participants may experience muscular fatigue and/or exhaustion, as well as muscular strain of the quadriceps and/or hamstrings. Some individuals may also experience cardiovascular symptoms such as shortness of breath and a light-headed sensation. In the event of injury, the campus Emergency Response Team will be activated to determine further treatment, if necessary.

9. Measures taken to reduce risks:

Measures will be taken to ensure a safe and secure environment at all time during participation. An exercise specialist will be on hand during the sessions to supervise proper stretching of the quadriceps and hamstrings before and after the task, as well as the proper positioning of the wall squat to reduce or minimize the risks of injury.

10. Right to Refuse:

Participation in this study is voluntary and subjects may choose at any time not to participate or to withdraw from the study. One may make this decision without penalty or loss to themselves.

11. Privacy:

The LSU Institutional Review Board (which oversees university research with human subjects) and Julie Franks Gill may inspect and/or copy the study records.

Results of the study may be published, but no names or identifying information will be included in the publication. Other than as set forth above, subject identity will remain confidential unless disclosure is legally compelled.

12. Financial Information:

There is no cost to the subjects, nor is there any compensation for participating in this study.

13. Withdrawal:

If you wish to withdraw at any time during this study, all tests will be stopped immediately.

14. Removal:

Removal of the participant, by the investigator, may occur if the individual fails to appear for the pre-arranged session or if the subject does not fully cooperate during the trial. The investigator will contact the subject regarding the decision made and can remove the participant without her consent.

15. Signature:

The study has been discussed with me and all my questions have been answered. I may direct additional questions regarding study specifics to the investigators. If I have questions about subjects' rights or other concerns, I can contact Robert C. Mathews, Chairman, LSU Institutional Review Board, (225) 578-8692. I agree to participate in the study described above and acknowledge the investigator's obligation to provide me with a copy of this consent form if signed by me.

Subject Signature

Date

Explanatory Style Questionnaire

Read the description of each situation and vividly imagine it happening to you. You have probably not experienced some of the situations, but that doesn't matter. Perhaps neither response will seem to fit; go ahead anyway and circle either A or B, choosing the cause likelier to apply to you. You may not like the way some of the responses sound, but don't choose what you think you *should* say or what would sound right to other people; choose the response you'd be likelier to have. Circle only one response for each question.

1. The project you are in charge of is a great success.
 - A. I kept a close watch over everyone's work.
 - B. Everyone devoted a lot of time and energy to it.

2. You and your spouse (boyfriend) make up after a fight.
 - A. I forgave him.
 - B. I'm usually forgiving.

3. You get lost driving to a friend's house.
 - A. I missed a turn.
 - B. My friend gave me bad directions.

4. Your spouse (boyfriend) surprises you with a gift.
 - A. He just got a raise at work.
 - B. I took him out to a special dinner the night before.

5. You forgot your spouse's (boyfriend's) birthday.
 - A. I'm not good at remembering birthdays.
 - B. I was preoccupied with other things.

6. You get a flower from a secret admirer.
 - A. I am attractive to him.
 - B. I am a popular person.

7. You run for a community office position and you win.
 - A. I devote a lot of time and energy to campaigning.
 - B. I work very hard at everything I do.

8. You miss an important engagement.
 - A. Sometimes my memory fails me.
 - B. I sometimes forget to check my appointment book.

9. You run for a community office position and you lose.
 - A. I didn't campaign hard enough.
 - B. The person who won knew more people.

10. You host a successful dinner.
 - A. I was particularly charming that night.
 - B. I am a good host.
11. You stop a crime by calling the police.
 - A. A strange noise caught my attention.
 - B. I was alert that day.
12. You were extremely healthy all year.
 - A. Few people around me were sick, so I wasn't exposed.
 - B. I made sure I ate well and got enough rest.
13. You owe the library ten dollars for an overdue book.
 - A. When I am really involved in what I am reading, I often forget when it's due.
 - B. I was so involved in writing the report that I forgot to return the book.
14. Your stocks make you a lot of money.
 - A. My broker decided to take on something new.
 - B. My broker is a top-notch investor.
15. You win an athletic contest.
 - A. I was feeling unbeatable.
 - B. I train hard.
16. You fail an important examination.
 - A. I wasn't as smart as the other people taking the exam.
 - B. I didn't prepare for it well.
17. You prepared a special meal for a friend and he/she barely touched the food.
 - A. I wasn't a good cook.
 - B. I made the meal in a rush.
18. You lose a sporting event for which you have been training for a long time.
 - A. I'm not very athletic.
 - B. I'm not good at that sport.
19. Your car runs out of gas on a dark street late at night.
 - A. I didn't check to see how much gas was in the tank.
 - B. The gas gauge was broken.
20. You lose your temper with a friend.
 - A. He/she is always nagging me.
 - B. He/she was in a hostile mood.

21. You are penalized for not returning your income-tax forms on time.
 - A. I always put off doing my taxes.
 - B. I was lazy about getting my taxes done this year.
22. You ask a person out on a date and he says no.
 - A. I was a wreck that day.
 - B. I got tongue-tied when I asked him on the date.
23. A game-show host picks you out of the audience to participate in the show.
 - A. I was sitting in the right seat.
 - B. I looked the most enthusiastic.
24. You are frequently asked to dance at a party.
 - A. I am outgoing at parties.
 - B. I was in perfect form that night.
25. You bought your spouse (boyfriend) a gift and he doesn't like it.
 - A. I don't put enough thought into things like that.
 - B. He has very picky tastes.
26. You do exceptionally well in a job interview.
 - A. I felt extremely confident during the interview.
 - B. I interview well.
27. You tell a joke and everyone laughs.
 - A. The joke was funny.
 - B. My timing was perfect.
28. Your boss gives you too little time in which to finish a project, but you get it finished anyway.
 - A. I am good at my job.
 - B. I am an efficient person.
29. You've been feeling run-down lately.
 - A. I never get a chance to relax.
 - B. I was exceptionally busy this week.
30. You ask someone to dance and he says no.
 - A. I am not a good enough dancer.
 - B. He doesn't like to dance.
31. You save a person from choking death.
 - A. I know a technique to stop someone from choking.
 - B. I know what to do in crisis situations.

32. Your romantic partner wants to cool things off for a while.
A. I'm too self-centered.
B. I don't spend enough time with him.
33. A friend says something that hurts your feelings.
A. She always blurts things out without thinking of others.
B. My friend was in a bad mood and took it out on me.
34. Your employer comes to you for advice.
A. I am an expert in the area about which I was asked.
B. I am good at giving useful advice.
35. A friend thanks you for helping him/her get through a bad time.
A. I enjoy helping him/her through tough times.
B. I care about people.
36. You have a wonderful time at a party.
A. Everyone was friendly.
B. I was friendly.
37. Your doctor tells you that you are in good physical shape.
A. I make sure I exercise frequently.
B. I am very health-conscious.
38. Your spouse (boyfriend) takes you away for a romantic weekend.
A. He needed to get away for a few days.
B. He likes to go explore new areas.
39. Your doctor tells you that you eat too much sugar.
A. I don't pay much attention to my diet.
B. You can't avoid sugar, it's in everything.
40. You are asked to head an important project.
A. I just successfully completed a similar project.
B. I am a good supervisor.
41. You and your spouse (boyfriend) have been fighting a great deal.
A. I have been feeling cranky and pressured lately.
B. He has been hostile lately.
42. You fall down a great deal while skiing.
A. Skiing is difficult.
B. The trails were icy.

43. You win a prestigious award.
A. I solved an important problem.
B. I was the best employee.
44. Your stocks are at an all-time low.
A. I didn't know much about the business climate at the time.
B. I made a poor choice of stocks.
45. You win the lottery.
A. It was pure chance.
B. I picked the right numbers.
46. You gain weight over the holidays and you can't lose it.
A. Diets don't work in the long run.
B. The diet I tried didn't work.
47. You are in the hospital and few people come to visit.
A. I'm irritable when I am sick.
B. My friends are negligent about things like that.
48. They won't honor your credit card at a store.
A. I sometimes overestimate how much money I have.
B. I sometimes forget to pay my credit-card bill.

Self-efficacy Appraisal Questionnaire

Please answer to the best of your ability.

1. In this wall squat, I expect I will be able to obtain each of the following results:

a. I will be able to perform the task to obtain a “needs improvement” rating

_____ Yes _____ No

*if yes, please circle your level of confidence in obtaining that score...

Not Sure 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Sure

b. I will be able to perform the task to obtain a “fair” rating

_____ Yes _____ No

*if yes, please circle your level of confidence in obtaining that score...

Not Sure 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Sure

c. I will be able to perform the task to obtain a “good” rating

_____ Yes _____ No

*if yes, please circle your level of confidence in obtaining that score...

Not Sure 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Sure

d. I will be able to perform the task to obtain a “very good” rating

_____ Yes _____ No

*if yes, please circle your level of confidence in obtaining that score...

Not Sure 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Sure

e. I will be able to perform the task to obtain an “excellent” rating

_____ Yes _____ No

*if yes, please circle your level of confidence in obtaining that score...

Not Sure 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Sure

Causal Attribution Questionnaire

Instructions: What do you feel was the main reason for your performance? _____

Think about the reason you have written above. The items below concern your impressions or opinions of this cause of your performance. Circle one number for each of the following questions.

Is the cause something that:

- | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| 1. Reflects an aspect of yourself | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | Reflects an aspect of this situation |
| 2. You meet in numerous situations | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | You encounter only in this situation |
| 3. Is always present | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | Is not always present |
| 4. Can act upon your results in various tasks | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | Can act upon your results only in this task |
| 5. Is inside of you | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | Is outside of you |
| 6. Does not vary according to time | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | Varies according to time |
| 7. Is about you | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | Is about others |
| 8. Cannot change | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | Can change |
| 9. Can intervene in all sorts of situations | 9 | 8 | 7 | 6 | 5 | 4 | 3 | 2 | 1 | Can intervene only in this situation |

Self-efficacy Appraisal Questionnaire

Please answer to the best of your ability.

1. In this hand grip task, I expect I will be able to obtain each of the following results:

a. I will be able to perform the task to obtain a “needs improvement” rating

_____ Yes _____ No

*if yes, please circle your level of confidence in obtaining that score...

Not Sure 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Sure

b. I will be able to perform the task to obtain a “fair” rating

_____ Yes _____ No

*if yes, please circle your level of confidence in obtaining that score...

Not Sure 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Sure

c. I will be able to perform the task to obtain a “good” rating

_____ Yes _____ No

*if yes, please circle your level of confidence in obtaining that score...

Not Sure 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Sure

d. I will be able to perform the task to obtain a “very good” rating

_____ Yes _____ No

*if yes, please circle your level of confidence in obtaining that score...

Not Sure 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Sure

e. I will be able to perform the task to obtain an “excellent” rating

_____ Yes _____ No

*if yes, please circle your level of confidence in obtaining that score...

Not Sure 10% 20% 30% 40% 50% 60% 70% 80% 90% 100% Sure

APPENDIX C: RAW DATA
Hand Grip

se/lv/G	se/st/G	scr/G	lo1gr	gl2gr	st3gr	gl4gr	lo5gr	st6gr	lo7gr	st8gr	gl9gr1
	80	40.25	9	9	9	9	8	9	9	1	9
4	270	45.5	9	7	8	8	9	2	9	1	7
2	140	41.5	9	9	9	9	9	9	9	5	5
3	180	57.5	7	1	1	9	9	9	5	1	9
4	300	42.5	9	6	7	4	8	4	8	1	8
5	320	54.75	7	8	8	7	9	5	9	1	9
3	290	66.75	9	8	8	8	9	9	5	3	6
3	150	45.25	8	4	5	7	8	4	9	1	7
2	70	69.25	3	6	6	7	6	6	3	1	7
2	160	46.5	9	8	8	8	6	7	8	5	6
1	70	46	3	3	8	5	3	4	7	3	5
2	80	37.25	6	1	9	7	9	8	9	9	5
5	380	45	4	5	4	5	4	6	6	2	5
4	250	69.5	8	8	6	6	2	5	9	1	4
3	90	46	3	7	2	3	3	3	3	3	7
3	140	58.25	6	5	6	7	7	4	6	4	6
5	430	80.5	8	8	8	9	9	4	9	9	9
3	210	56.5	7	8	7	7	7	8	7	7	7
5	430	64.25	9	9	7	8	8	6	7	6	8
3	230	61.5	8	8	9	7	8	2	9	1	6
2	80	54.25	8	4	4	3	8	8	7	1	3
3	30	61.25	5	9	9	9	9	5	9	5	5
5	370	50.25	9	4	7	7	8	7	9	1	9
2	40	56.75	8	4	4	2	7	8	7	1	3
2	70	52.75	3	7	5	5	9	5	9	1	5
3	150	56.5	6	7	7	7	8	7	8	5	9
5	90	60.25	9	9	9	9	9	8	9	9	9
3	230	80.25	1	4	2	5	3	1	7	2	7
2	60	60.5	4	2	1	4	4	6	6	6	7
2	70	44.5	6	2	2	2	2	7	8	3	4
5	340	71.25	7	5	6	7	8	6	8	5	7
3	200	50.25	3	6	7	7	6	5	4	9	1
5	220	65.75	8	7	8	8	8	5	7	6	8
4	330	45.5	8	8	7	7	7	5	9	1	7
5	400	105.5	9	9	9	9	9	9	9	9	9
1	60	50.25	9	5	9	6	9	9	9	3	6
2	80	52.75	8	7	7	2	8	2	8	1	9
4	320	59.5	8	8	7	7	8	9	8	8	7
3	190	59.5	7	4	5	4	7	2	9	1	9
1	100	64.75	9	9	9	9	9	9	9	1	9
3	150	61	5	5	7	7	5	7	5	5	5
4	320	49	7	5	4	5	5	3	8	3	5
5	360	45.75	3	6	6	5	4	6	6	4	7
5	300	68.25	7	9	6	5	7	7	8	3	8
2	90	67.75	4	3	2	3	4	3	4	3	2
2	50	54.5	7	8	7	6	7	4	5	4	5
3	210	64	8	7	7	8	9	3	9	1	9
4	310	57	9	6	9	8	8	7	8	1	9
5	470	64.5	9	9	9	9	9	7	9	8	9
3	200	64.75	6	5	7	7	6	5	4	4	7
4	280	74	7	8	8	8	6	7	5	5	6
5	220	55	6	7	7	8	5	4	7	3	8
4	280	61.75	9	5	9	7	7	7	9	7	7
3	150	57.75	6	4	4	5	5	7	6	3	8
3	110	49.25	7	7	6	6	7	4	6	3	6
3	120	60.5	8	8	9	9	8	7	9	2	8
3	240	56.75	6	5	4	8	6	7	7	2	8
3	150	71.25	7	9	6	6	8	4	4	9	7
4	180	63.5	7	6	5	7	1	9	9	1	8
2	100	57.75	1	9	9	7	8	1	1	1	9
5	330	49.25	8	8	7	8	8	6	5	6	8
5	250	47.25	5	5	5	6	5	5	6	5	5

5	270	69	9	8	5	7	2	4	6	3	8
5	340	59.75	7	3	3	6	4	3	3	3	9
2	130	66.25	7	7	6	7	8	3	8	3	7
3	120	61.75	1	1	5	5	1	5	5	5	5
2	70	77.5	6	5	5	7	9	5	5	4	6
2	100	53	1	1	3	5	4	4	9	1	5
5	240	69.5	5	9	9	7	1	9	1	1	5
5	400	61.75	1	4	4	5	9	1	1	1	9
5	320	54.25	2	7	5	7	5	6	6	5	8
1	30	45	5	3	3	5	5	4	5	8	8
2	60	89	7	6	8	6	8	5	7	4	6
2	200	40.25	9	9	9	9	5	5	9	9	9
3	160	42.25	9	4	7	8	4	9	9	1	6
3	300	46.25	9	1	8	8	9	9	9	1	5
5	220	53.76	1	3	4	5	5	4	3	5	5
3	170	59.75	7	8	8	8	7	8	9	2	9
4	150	52.25	6	7	7	5	7	8	7	7	8
2	20	54.5	1	7	9	7	5	3	5	4	7
5	440	67.75	7	7	4	8	3	7	7	3	9
5	200	63.25	9	7	8	8	9	8	9	9	6
3	200	53.25	4	4	5	7	5	7	9	8	7
5	190	52.25	8	2	9	9	8	6	7	5	7
2	90	56.25	3	4	3	2	7	5	3	2	6
1	10	58.5	5	6	7	6	5	2	6	3	7
5	500	70.75	1	9	1	9	1	9	9	1	9
5	210	53.5	5	4	2	4	4	2	7	9	5
5	370	66	7	7	9	9	9	7	9	9	7
4	260	81.5	7	7	5	6	7	7	7	3	7
4	220	60	6	3	1	7	9	1	8	1	9
2	80	70	4	4	5	6	7	4	8	2	8
5	280	55.75	7	8	9	9	9	9	8	9	9
3	100	48.5	6	2	5	5	6	2	8	2	8
5	250	60.5	9	8	9	8	9	8	9	7	9
5	410	55	8	5	8	8	8	7	8	5	8
3	240	68.5	1	6	3	6	3	8	3	4	9
3	110	41.75	8	7	7	8	8	6	9	5	8
5	500	55	8	8	8	8	8	8	5	8	8
3	210	47.5	7	6	6	8	6	5	6	7	7
4	200	56	6	1	1	6	8	6	9	1	7
2	90	59	1	9	9	5	1	1	9	1	9
5	420	61	7	6	8	7	7	8	8	3	5
2	60	58.25	5	6	2	4	5	5	3	6	6
1	100	46.25	9	9	9	9	9	9	9	9	9
4	220	48.75	6	4	5	4	6	5	9	1	7
3	210	64.75	4	6	5	7	7	5	7	1	6
3	150	57.75	9	7	7	7	1	1	9	1	7
4	200	57.75	9	8	8	8	8	1	5	1	9
4	100	45.75	6	5	3	5	6	3	8	1	5
2	120	65.5	4	5	1	9	5	1	9	1	9
3	50	57	5	3	5	4	5	3	5	1	5
2	50	57	6	3	5	7	7	4	7	6	7
2	180	50	8	3	8	9	7	3	9	2	8
2	15	46.75	4	1	1	5	5	2	9	1	9
2	120	59.75	9	8	4	7	9	1	9	1	8
3	120	60.25	5	4	4	2	5	3	6	6	4
3	120	62.25	8	5	8	9	9	4	9	1	8
2	110	42.25	5	3	5	6	5	5	6	2	5
5	260	41.5	5	4	3	5	4	4	4	2	2
2	100	49.25	8	7	6	6	7	8	8	6	7
3	160	57.5	8	3	8	6	6	2	5	1	6
3	120	64	7	6	4	4	6	4	6	1	3
2	40	59	6	2	5	7	6	3	6	3	5
3	150	51.75	5	3	6	4	5	8	8	1	7
4	140	66.25	5	4	1	6	1	6	9	1	9
3	140	45.75	2	4	2	5	3	2	8	2	4
5	460	74.25	9	6	6	7	7	8	9	2	9
4	320	40.5	9	9	9	9	9	2	9	9	9
5	500	52	9	2	2	1	5	3	7	1	3

3	220	48.5	9	6	5	7	4	8	9	1	7
3	200	59.5	3	4	9	7	6	7	9	4	6
5	290	52.5	7	8	9	9	9	6	5	9	9
5	260	37	9	9	9	9	7	5	9	1	9
4	250	59.75	7	6	7	7	9	9	9	1	7
3	280	72.5	7	2	7	7	8	2	8	1	8
2	170	70.75	9	5	4	5	9	6	9	1	7
5	220	63.25	8	5	9	9	5	5	9	1	9
5	340	74.5	9	7	8	9	9	9	9	1	9
3	100	59.5	7	5	3	7	7	4	7	1	5
3	260	51.5	2	8	9	9	7	8	9	5	8
4	140	45.25	7	3	3	3	7	2	8	1	3
2	80	76.75	9	7	6	7	8	6	7	2	7
2	100	63.75	2	2	3	3	1	9	9	1	5
2	120	56.75	8	8	8	7	8	8	8	4	7
2	80	72	9	8	8	8	9	1	9	1	9
3	230	62	7	5	5	6	8	4	8	4	5
1	50	45	5	4	1	5	7	5	6	1	8
3	90	50.5	7	5	7	6	5	6	7	2	5
5	340	63	5	2	3	4	7	6	7	3	7

Wall Squat

selvl/S	se/st/S	x/S	lo1sq	gl2sq	st3sq	gl4sq	lo5sq	st6sq	lo7sq	st8sq	gl9sq	G-B/ovrll
1	80	18	9	9	9	9	9	1	9	1	9	-5
3	220	31	9	9	8	8	9	3	9	1	8	-7
6	410	57	9	9	9	9	9	9	9	5	5	3
3	200	41	7	1	1	8	9	1	9	1	9	2
4	280	32	9	1	9	6	6	9	6	6	9	-6
5	290	67	9	9	8	9	9	8	9	1	9	-5
3	270	43	9	5	4	7	9	9	9	1	7	5
2	130	60	8	9	8	8	8	4	9	1	9	0
2	80	15	8	8	8	7	8	3	7	2	7	-1
2	150	25	8	2	8	8	8	5	8	5	8	0
1	80	20	8	8	6	6	3	2	8	1	8	10
2	60	14	8	5	3	3	4	5	6	1	3	3
4	240	62	7	7	6	5	6	2	6	2	6	0
5	30	55	8	5	8	6	2	1	8	1	3	-3
1	30	50	6	4	6	6	6	3	6	6	4	-3
2	130	40	4	4	3	4	4	3	4	5	5	-5
3	220	28	8	6	8	9	6	4	4	1	8	5
2	150	63	2	2	2	2	3	3	2	1	7	-8
5	360	61	8	7	4	5	8	4	7	5	8	6
4	300	72	8	7	7	6	9	1	9	1	7	-2
1	100	9	8	6	6	8	6	6	6	1	8	3
3	80	22	9	9	9	6	8	6	7	5	5	-3
3	210	25	9	7	7	8	9	8	9	1	9	3
2	150	29	9	4	9	4	9	9	9	5	9	-1
2	90	10	9	9	9	5	9	9	9	1	5	-1
3	170	73	4	3	4	7	3	7	6	3	6	-2
5	170	49	9	9	9	8	8	9	9	9	9	2
1	100	19	9	9	9	9	5	1	9	1	9	-2
3	150	16	6	5	5	6	7	6	6	8	6	-3
1	40	117	8	7	6	6	2	3	8	2	5	-3
5	320	11	8	6	4	6	8	7	9	3	6	-3
1	50	50	6	8	4	8	5	4	9	1	8	-1
5	250	79	8	7	6	8	8	7	8	6	6	2
2	130	40	8	6	6	7	8	7	9	1	5	3
5	250	48	8	8	8	8	8	8	8	8	8	0
2	110	26	7	7	3	8	8	3	9	2	9	3
2	120	16	9	8	6	8	8	2	8	1	9	2
3	240	30	3	2	5	7	5	3	8	1	5	0
3	180	60	2	2	5	2	5	4	9	1	8	-5

4	300	15	9	9	9	9	9	9	9	1	9	1
3	150	44	5	5	6	6	5	5	6	6	6	7
3	180	49	4	5	3	2	5	3	6	2	5	2
5	380	120	5	6	6	7	6	5	7	5	6	-1
3	140	3	3	3	5	5	4	4	5	3	4	4
1	30	51	4	3	2	4	3	4	3	4	3	0
3	250	19	8	4	3	5	5	9	9	1	5	-6
3	180	21	9	6	4	6	9	8	9	1	7	0
1	70	18	9	8	9	8	9	9	9	1	9	-10
5	480	67	9	7	7	7	8	5	6	1	1	4
2	100	75	4	5	5	6	6	4	5	3	7	2
1	40	7	6	7	7	7	6	6	7	3	5	6
5	190	51	6	7	7	7	5	6	6	7	8	0
5	270	40	3	5	3	5	5	3	8	2	9	3
3	160	46	5	6	6	6	5	7	7	2	8	-14
3	130	29	6	7	6	6	8	4	6	4	6	-1
3	160	82	7	8	8	9	9	8	9	4	6	8
2	180	23	8	7	7	7	7	7	8	2	8	-5
4	280	19	7	4	4	5	7	3	5	1	5	-5
5	380	24	9	3	3	4	7	5	8	5	2	1
2	90	17	7	2	7	6	1	1	9	1	9	-1
5	470	24	8	5	9	7	7	1	9	1	9	2
5	250	16	5	5	5	5	5	4	6	4	5	-3
2	120	16	6	5	4	7	3	5	7	4	6	4
5	250	14	5	7	2	8	4	2	5	1	9	4
2	130	18	7	6	7	8	3	4	8	2	8	4
3	140	7	1	5	5	5	1	5	5	5	5	-2
3	60	27	9	1	1	3	9	4	9	1	4	-4
2	90	25	9	7	7	6	8	8	8	1	6	7
5	380	24	8	9	9	5	8	3	8	2	7	-4
5	420	15	5	5	5	5	9	5	1	1	5	-1
5	350	16	4	6	5	6	6	6	6	4	6	2
2	130	10	4	2	2	5	4	3	2	5	5	2
2	70	23	8	2	5	4	6	9	9	1	4	-4
1	100	23	9	9	9	9	5	9	9	9	9	3
2	80	22	9	4	8	7	4	9	9	1	8	0
5	500	20	5	4	5	6	7	6	8	1	9	-1
5	150	17	6	5	5	5	5	4	6	2	5	-2
5	420	23	8	8	8	7	6	9	9	1	9	-1
5	140	18	6	5	6	4	6	4	6	5	6	7
1	10	23	9	5	9	5	5	9	9	1	5	-4
5	420	19	8	7	7	7	3	2	8	1	9	2
5	240	19	4	5	5	6	8	4	7	3	6	-2
3	190	24	8	4	7	8	8	9	8	5	6	-2
3	170	18	4	3	5	6	5	4	9	1	7	-3
4	170	20	8	3	4	6	5	5	7	2	4	-4
1	10	26	9	8	8	8	8	9	9	2	8	-2
5	500	27	9	9	1	9	9	9	9	1	9	1
5	180	17	3	5	6	5	5	2	9	7	4	-3
5	420	26	8	9	9	7	9	8	9	9	9	4
5	320	20	7	3	4	6	6	2	7	3	7	-3
5	50	17	9	4	2	7	3	4	5	1	6	6
2	90	20	5	4	6	7	7	4	8	2	5	-3
5	380	25	9	7	8	9	8	9	8	1	8	0
3	160	25	9	8	8	2	8	2	8	2	8	-1
5	310	27	9	5	6	8	9	6	9	6	8	10
5	400	24	8	6	2	4	8	2	8	3	8	-1
3	260	23	5	6	9	8	9	2	9	1	5	0
4	210	24	7	7	8	7	8	6	9	5	8	-2
5	500	24	8	8	8	8	8	8	8	8	8	5
3	230	20	8	5	4	5	6	4	6	8	7	-6
3	60	26	8	1	3	3	9	8	9	1	6	6
2	80	11	1	9	9	9	1	9	9	1	9	3
3	220	20	8	6	6	6	6	7	6	3	3	6
2	40	14	4	3	3	7	5	7	5	4	7	-2
2	110	27	9	1	1	1	9	9	9	1	9	-9
4	200	2	7	6	5	5	9	6	9	1	9	7
1	80	18	4	7	6	5	7	4	7	2	6	0

2	90	15	9	9	9	9	5	5	1	9	9	-3
1	20	19	1	3	1	4	9	9	9	1	5	-6
5	140	17	3	5	5	7	5	2	9	1	5	-1
1	30	17	3	9	9	9	5	1	9	1	9	0
2	20	14	5	3	3	3	5	4	4	1	4	2
2	50	17	3	3	2	7	7	2	7	2	6	-2
3	260	26	9	8	9	9	9	3	8	2	8	1
4	310	23	5	5	5	9	9	5	9	1	9	4
1	10	27	9	8	9	8	9	1	9	1	8	-3
3	80	17	6	5	6	3	5	3	6	3	3	1
3	120	26	8	6	8	9	9	5	9	5	8	-1
4	260	16	5	4	5	6	5	4	6	3	7	10
4	170	21	9	8	8	7	5	3	7	8	8	3
2	110	22	7	5	6	6	7	5	8	5	7	-7
1	100	16	8	5	9	7	3	8	5	9	4	-4
5	150	17	6	4	4	5	6	5	5	1	5	-3
4	160	25	9	5	4	3	7	5	9	4	4	4
2	130	19	5	8	8	8	6	5	8	1	8	-5
2	90	27	9	8	9	9	9	9	9	1	9	1
1	100	13	2	2	2	4	3	3	8	2	5	-1
5	260	27	9	8	7	9	9	9	9	1	9	4
4	340	27	9	1	1	4	9	9	9	1	5	10
5	250	25	7	1	1	1	9	9	9	1	1	-1
2	100	23	7	4	7	8	8	3	8	1	8	2
2	100	15	5	1	1	9	1	2	9	1	9	-5
3	160	22	8	8	9	8	8	7	6	1	9	2
4	200	25	9	9	9	9	7	5	9	1	9	2
3	160	27	9	7	7	9	9	7	9	1	7	0
2	150	24	8	8	7	7	8	6	8	2	8	-5
1	100	27	9	6	6	6	9	7	9	1	7	-6
2	40	17	7	9	8	8	5	5	5	1	9	-4
1	100	27	9	9	9	9	9	9	9	1	8	-2
3	110	25	9	8	7	7	7	6	8	1	4	2
2	150	22	9	7	7	7	8	5	5	1	7	5
1	80	18	5	6	6	6	6	4	7	1	2	-5
1	20	25	9	8	7	7	7	6	9	1	6	0
2	100	17	7	7	4	5	1	9	9	1	7	4
2	110	24	8	8	8	8	8	8	8	2	7	-3
1	30	27	9	8	8	8	9	1	9	1	8	-4
1	80	23	8	6	7	5	7	5	8	6	5	0
1	100	19	6	7	5	7	7	5	6	1	6	-6
3	80	21	7	5	6	6	7	6	7	3	6	-5
5	200	23	8	6	6	8	8	3	7	5	8	-7

VITA

Julie Franks Gill received her Bachelor of Arts in fitness and wellness from Louisiana College in Pineville, Louisiana. She then attended the University of Louisiana at Monroe where she completed her Master of Education with an exercise science emphasis. During the time that Julie was completing her master's, she was an Exercise Specialist II at Rapides Regional Medical Center's Health Central Fitness Center. Julie later accepted a teaching position at Louisiana State University at Alexandria. Shortly after starting this position, she was admitted into the doctoral program at Louisiana State University in the Department of Kinesiology in the spring of 1999. In the fall of 2002, Julie was promoted to assistant professor and has since worked in that capacity. Other duties and responsibilities include service on the Faculty Senate Committee, the General Education Assessment Committee, and the Improvement of Instruction Committee. She is also the designated campus liaison to the Louisiana Campus Compact organization which promotes service learning. Julie is a member of the Louisiana Association of Health, Physical Education, Recreation, and Dance (LAHPERD), the American Alliance of Health, Physical Education, Recreation, and Dance (AAHPERD), the Southern District Association of AAHPERD, the American College of Sports Medicine (ACSM), and the National Strength and Conditioning Association (NSCA). The focus of Julie's research has been on college students' motivation, self-efficacy, and attributions regarding their physical activity. Julie plans to continue teaching at LSU Alexandria where she will seek to become tenured in the near future. At the May 2007 commencement she will receive her Doctor of Philosophy in kinesiology.